STEEL

The Metalworking Weekly

EDITORIAL INDEX

VOLUME 151

July 1 to December 31, 1962

Subject Index 3

Company Index 16

Author Index 26

THE PENTON PUBLISHING COMPANY

Penton Building, Cleveland 13, Ohio

SUBJECT INDEX

A

Abrasives: See Grinding, Polishing

Accountants:
Committee used to manage financial-accounting, 9/24, p.27
Sir Howitt: Accountants play key business role, 10/15, p.166

Adhesives:
Adhesive takes 72 G (Eastman), 10/8, p.68
Nylon-epoxy adhesives, cryogenic use, 10/15, p.114

Aerospace Industries Assn.:
1962-72 *Aerospace Technical Forecast*: Equipment needs listed, 12/10, p.68 and predictions, p.20
1962-72 *Aerospace Technical Forecast*: What defense contractors will buy, 12/3, p.25

Africa:
Sponge iron facility, Southern Rhodesia, 10/22, p.165

Agency for International Development:
See Foreign Trade (AID)

Air Filtering:
See Dust Collectors & Filters

Aircraft:
Airport construction lags, 10/15, p.18
'Instant' airfields for jet fighter planes, 7/16, p.28
Sparkplugs made of iridium, 7/2, p.12
Supersonic passenger transports, English and French, 7/30, p.12
Supersonic research plane of stainless steel, spotwelded, 7/23, p.122

Alloys:
Columbium and hafnium high temp. tested by Bureau of mines, 12/31, p.17
Iron-aluminum, French development, 7/30, p.12
Lithium purifies carbon, specialty steels, 9/10, p.96
Magnesium-lithium for space vehicles, 10/29, p.30
Molybdenum base alloy, core in aluminum diecasting, 7/2, p.70
Nimonic 115 (vacuum melted grade) for turbine buckets, 8/6, p.93
See also Stainless Steels
See also Steel Alloys
See also Metal Selector

Aluminum:
1962 at a glance: Industry accesses itself (big problems but bigger potentials), 8/13, p.61
'63 sales prediction, 10/1, p.26
Aluminum consumption (industry usage), 7/9, p.9
Big Three set up Committee of Aluminum Producers (materials awareness programs), 12/17, p.27
Aluminum oil pans, diesel-engines, 9/3, p.33
Aluminum (Mark IV) casting ingot, 9-17, p.128
Aluminum sheet mill, rolls to 56 in. wide, 8/13, p.33
Aluminized steel, coating process, 10/8, p.70
Aluminum spheres for liquid hydrogen, 7/9, p.12
Small lot orders (ingots less than 2000 lb) handled by distributors instead of mill, 8/13, p.18
See also Nonferrous (markets)
See also Stockpiles

American Die Casting Institute Inc:.
Elects, B, 9/17, p.35

American Hot Dip Galvanizers Assn.:
Awards for design ideas (individuals), 7/30, p.61; 9/3, p.31

Aluminum Assn.:
Elects, B, 2/10, p.35

American Institute of Electric Engineers:
Renamed in merger, B, 12/3, p.35

American Institute of Mining, Metallurgical & Petroleum Engineers (AIME):
Meeting: Electric furnaces role (J. W. Shea), 12/17, p.33

American Iron & Steel Institute:
Asks Buy American differential hike to 50%, 9/3, p.27
Award program 'Design in Steel', 8/27, p.49
Chicago Museum of Science & Industry exhibit (Showcase for Steel), 12/17, p.25 and editorial p.15
Stainless steel brochure, market growth, 7/16, p.88
Warns government purchasing more foreign steel, 9/3, p.27
Wiremakers react to foreign competition, 7/30, p.24

American Machine Tool Distributors Assn.:
Meeting report, business outlook, 11/5, p.31

American Management Assn.:
Canadian center in Montreal, 10/15, p.164
Tips for fewer, better meetings, 11/19, p.104
Wage-methods study, Japanese team, 10/29, p.77

American Marketing Assn.:
Burroughs' Eppert: Low overhead warning signal, 7/2, p.42
McKitterick (GE): Marketing's rule in profit failure, 7/2, p.25
Union Tank's Locke: Attitude of U. S. firms toward exporting, 7/2, p.42

American Metal Stamping Assn.:
Elects, B, 11/12, p.35

American Powder Metallurgy Institute:
Elects Karian president, 8/6, p.33

American Society of Association Executives:
'Impact of change' in American economy next five years, 9/10, p.17

American Society for Metals:
'64 European exhibition announced, 9/10, p.32
Award competition (materials applications), 11/5, p.94
Award winners in materials competition, 11/12, p.61
Elects Raudebaugh president, other officers, 11/12, p.28
Literature searching computer, NFS grant, 12/17, p.96

American Society for Testing & Materials:
New headquarters building, 11/5, p.35

American Society of Tool & Manufacturing Engineers:
Marsilius: Individualism stressed in youth training, 12/10, p.126

American Standards Assn.:
Revised standards, ferrous materials and metallurgy, 10/22, p.166

American Vacuum Society:
Meeting: R&D for defense, high vacuum methods, 11/19, p.31

American Zinc Institute Inc.:
Studies plated zinc diecasting, 7/30, p.56
Studies market for galvanized steel in electric utilities field, 7/2, p.104

Appliances:
Automatic clothes dryers promotion, 7/2, p.10
Dryer sales, 10/29, p.19
Electrical appliance sales, 8/27, p.17
Gas appliances, first seven months, 9/10, p.19
Longer warranties needed on appliances, 11/19, p.15

Apprentices:
National apprenticeship program: Goshen reports, 8/27, p.25

Arab Republic: See Foreign Markets

Arbitration: See Labor

Area Development:
ARA retraining program, 9/10, p.92; 11/5, p.18
Chicago, industrial projects, 9/24, p.31
Florida, industrial growth, 9/17, p.124
Minnesota studied for steel mill, 7/30, p.10
Missouri quarry holes now underground warehouse and manufacturing space, 11/12, p.68

Armour Research: See Illinois Inst.

Argentina:
Economic downtrend predicted, 8/27, p.89

Army:
Reorganization of procurement and purchasing opens new business potential, 10/15, p.27

Assembly: See Fabrication, Assembly

Associated Industries of Cleveland:
Speakers at industrial relations conference: Healy (Harvard), 10/1, p.26 and Rothman (NLRB), 10/1, p.25

Association of Iron & Steel Engineers:
Cleveland convention, exhibition highlights, 9/17, p.108
Exhibited: Tower pickling line, 10/1, p.48
Exhibitors offer ideas, equipment, 10/1, p.24

Associations Role: See Trade Associations

Atomic Energy:
Atomic powerplants, AEC and Westinghouse study, 8/20, p.71
Atomic powerplants become competitive (beats fossil fuel costs), 9/10, p.32
Atomic reactors operating in world, U. S. leads, 12/31, p.63
Columbia Univ. nuclear preparedness symposium, 10/29, p.27
Fuel containment vessels-alloy heads, 7/30, p.24
Fuel particles graphite coated, 8/6, p.89
Fuel shipped in aluminum tubes, 8/20, p.78
Isotopes (uranium and plutonium) separated at new Oak Ridge facility, 11/5, p.104
Ocean floor nuclear reactor-undersea study, 11/26, p.18
Portable nuclear reactor operates radars for Air Defense, 9/24, p.19
Radioactive isotopes on airfield measure altitude in inches, TO, 10/8, p.20
Radiation shield testing system, 7/2, p.68
Scrap demolition problem, 11/12, p.66
Technology ready for market growth, 7/2, p.27
Technology lag: Rickover addresses Metal Show, 11/5, p.25

Attitude Surveys:
Attitude surveys can pay off (employee motivation), 7/23, p.123

Audio-Visual:
Color slides used to train employees, 7/30, p.25

Auditing:
Management's internal auditing team for cost reduction, 7/9, p.62

Australia:
1970 steel exports forecast, 8/13, p.115
Atomic power to develop ore deposit, 7/16, p.68
Auto sales, 10/29, p.78
Broken Hill Pty. Ltd. revamps steelmaking facility, 8/6, p.137
Broken Hill Pty. builds blast furnace, 8/13, p.116
Dome atop Academy of Science (fastening problem solved), 9/17, p.192
Electrolytic line meets need for tin plate, 8/13, p.76
Iron ore benefication combines two stages, 7/9, p.70
Island of iron ore, 7/16, p.67
Japanese steel worry, 10/1, p.75
Japanese trade agreement, 11/26, p.148
Oil discovery sparks steel pipe sales, 11/26, p.148
Production rising, 7/16, p.68
Rapid transit double-decker cars, 12/31, p.62
Perth Commonwealth Games to promote business, 9/24, p.137
Tin deposits found, 7/9, p.56
Workers needed, benefits introduced, 11/19, p.139

Automation:
Arc spotwelding potential improved by automation, 7/23, p.120
Are you ready for automatic assembly? 12/17, p.74
Automated seamless mill (Sweden), tubing for bearings, 9/10, p.84
Investment casting plant semi-automatic, 11/19, p.84
Slitting line, automatic handling, 8/13, p.66
Where automation is making inroads in steelmaking, 9/17, p.92

Automotive:
4-door sedans (chart), dimensions, engines, accessory prices, 10/22, p.218
1962: 3rd quarter sales, near record, 11/12, p.26
1962: 4th quarter sales strength puzzles analysts—will it last? 12/17, p.149
1963: Automakers plan for 6.2 million sales, 7/30, p.33
1963 sales startup beats last year's, 10/22, p.217
1963: How Detroit designs for easier processing (drive for reliability), 8/13, p.107
1963 option trends: Buyers want more comfort, glamour and zip, 12/31, p.55
1964 tooling programs, 7/2, p.24
1964 tooling wanted in advance by automakers, 11/12, p.105
Aluminum door hinges, cold casting method, 10/22, p.33
Aluminum engine block abandoned by Pontiac (Tempest), 9/24, p.19
Aluminum use, '63 cars, 12/31, p.56
Auto (box) revamped by STEEL, 7/30, p.33
Auto preferences changing, compact market leveled off (cars over $2000 and over $3000), 11/12, p.106
Automakers' spending plans (property, plant, equipment), 7/2, p.35
Buick's Riviera, 9/17, p.184
CPM (Critical Path Method) acts as Detroit's dew line, 12/24, p.55
Cadillac cast crankshaft, 11/5, p.146
Canadian tariff ruling (automatic transmissions) could hit parts suppliers, 11/26, p.139
Chrysler disc brakes for turbine car, 7/2, p.36
Chrysler sales pitch on '63 styling (Engel), 8/27, p.81
Convertible sales, 8/20, p.91
Corrosion combat, stainless body trim, 7/23, p.11
Cost comparisons - international, 12/3, p.109
Defense contracts, research and development awards (firms), 7/9, p.39
Disc brakes trend, 8/6, p.129
Engineers want glamour of space age (Detroit worry), 9/3, p.115
Engineering changes for '63 cars, 10/15, p.155
Fiberglass family car, will public buy? 9/10, p.159
Flexibility concept — interchangeability of parts, 12/10, p.115
Ford-Mustang, experimental sports car pic., 10/8, p.96
Foreign car competition (makes listed), 7/2, p.50

Foreign car builders, new models, 10/15, p.156
Foreign auto activity; also 'throw-away' engines, 11/19, p.132
Foundry facilities, Bartlet-Snow contract, 8/27, p.82
GM to drop unit bodies in 1964?, 8/20, p.113
GM door hinges, automatic assembly, 12/17, p.150
GM-Holden (Australia) enters 15th year, 10/22, p.225
GM sprays vinyl coatings on some interiors, 10/29, p.70
GM-tilt wheel steering, 10/8, p.95
German production (cars), 12/3, p.117
German automan (Vorwig) notes tighter markets, 10/8, p.96
German engine, single rotary piston Wankel, for sports car, 10/8, p.96
Glue in glass (Thiokol glazing), 12/31, p.56
Horsepower ratings in 'normal atmospheres' campaign, 10/29, p.70
Japan no threat—yet, 12/3, p.109
Japan's Honda sports car, 12/3, p.110
Luxury cars rolling along (Cadillac, Lincoln, Imperial lead), 10/8, p.95
Materials battle in auto market unabated. Forecast: Only stainless, plastics up, 11/19, p.131
Material combinations studied by U. S. Steel (Reinhart), 11/5, p.145
Opel (Germany) machine lines 'debugged' before shipment from Ingersoll, 8/13, p.71
Opel powered by four-cylinder, water-cooled, front mounted engine, 8/13, p.72
Overseas markets urged by SAE speaker, 9/10, p.160
Plastic clips challenge metal fasteners, 7/30, p.34
Plymouth: Where materials changes will be made (chart), 8/27, p.82
Rambler takes new tack on unitized body building, 9/24, p.129
Renault's R-8 introduced (Grob-president pic), 10/1, p.67
Research and development lag indicated, 12/31, p.25
Simca, rear engine, 8/27, p.82
Stamping press, new forming method for door panels, 11/26, p.140
Steel need for autos, five year forecasts, 9/3, p.116
Studebaker's sales trend (7 years); seeks to hold until '64 restyle, 9/17, p.183
Studebaker-Avanti, assembly slow-up, 9/17, p.184
Studebaker-Avanti, disc brakes, 8/6, p.129
Studebaker-Avanti, fiber glass body, 9/10, p.159
Studebaker-Wagonaire station wagon, 9/17, p.183
Suppliers (machine tools and parts) hit by VW chief, 10/29, p.69
Truck sales high, 12/17, p.149
Volkswagen: Dr. Nordhoff slams U. S. suppliers; urges increased free world trade, 10/29, p.69
Volkswagen: 3rd biggest car-maker, 9/17, p.31
Volkswagen price ups, 7/16, p.27
Volkswagen stickler in Common Market sales, 7/23, p.94
Volkswagen traces car noises and vibration with electronic telemetry, 8/6, p.75
Willys' Wagoneer jeep has automatic transmission, 10/22, p.217

Automotive Engine Rebuilders Assn.:
Moves headquarters, B, 11/5, p.35

Award Programs:
ASM awards, materials competition, 11/12, p.61
'Design in Steel' award program, 8/27, p.49
'E' for Export awards, 7/9, p.27 and 8/13, p.86
Galvanizers for design ideas, 7/30, p. 61 and 9/3, p.31

B

Balance of Payments:
'62 deficit forecast, 7/30, p.26
U. S. battles to hold dollar stability: Rundt, 8/6, p.138
U. S. raises funds abroad by sales of 5.5% interest bearing Eximbank notes, 7/30, p.48

Bars:
Bliss & Laughlin machine produces steel bars continuously from coiled stock (Vaughn Rollmatic), 12/17, p.29
Cold drawn steel bars, cleaning-coating (special lube), 8/20, p.72
Continuous cast bars may increase iron use, 7/23, p.139
TD nickel bar (dispersion hardened) gives metals high temperature strength, 8/6, p.76
Track mounted shotblasting unit used ahead of draw bench for handling bar stock (magnifies machine utility), 7/23, p.133

Battelle Memorial Institute:
Co-op research trend, 7/30, p.51
Corrosion and deposits from combustion gases studied, 10/22, p.165
Decarburization effects, 8/13, p.20
Design guides for plated zinc die-castings, 7/30, p.56
HERForming (chart), principal energy sources, 8/6, p.66
New high strength steels (stainless and maraging), for high speed aircraft and missile work, 8/6, p.20
R&D program, does it fit your corporate objectives?, 12/17, p.28
Superconductivity report, 9/17, p.19

Bearings, Bushings:
Air bearings (fluid cushion) on strip processing line, 8/6, p.72
Automatic grinder for inner ring ball races, 11/26, p.83
Automated seamless mill makes tubing for bearings, 9/10, p.84
Bearings tested with simulator, 10/22, p.18
Dry bearings (lubeless) withstand rough workout, 9/3, p.17
Lubricant factors, 9/17, p.20
Nylon bushings cast on shafts, 12/17, p.81
Oil affects bearing tests, 8/13, p.20
Powdered metal bearings shipped to Des Moines for cotton picking, 8/6, p.94

Belgium:
Total of foreign investment; plan integrated steel mill, 7/23, p.109

Beneficiation: See Iron Ore

Beryllium:
AEC report, techniques, 9/10, p.20
Ductile beryllium made from powder, 10/15, p.103

Billets:
Billets tested for cold heading wire, 7/16, p.88
Rolled billets, black light detects flaws, 12/17, p.80

Blast Furnaces:
Bureau of Mines with 22 iron-steel producers conduct co-op research, 8/13, p.28
Coal injection systems (see Steelmaking)
Pulverized coal into blast furnace means savings per ton for pig iron, 10/15, p.27
Test work on blast furnace stoves, 9/17, p.113

Blasting: See Cleaning, Blasting

Blowing Methods:
Used for seamless aluminum cans, 10/15, p.33 and 12/31, p.10
Used for hollow axles—railroad cars, 10/15, p.111

Bluecollar Workers: See Labor

Bonding:
Diffusion bonding, GE service (hydraulic distributor plate for jet engine pic), 8/6, p.85
Diffusion bond vs. resistance weld in columbium, 12/24, p.16
Glue (stearic acid) a molecule thick bonds polyethylene and metal, 12/31, p.12
Polymeric coating bonds nails to wood, 10/1, p.38
Rubber (adiprene urethane) to metal, 7/2, p.70
Silicon carbide bonded to metals or nonmetals, 7/2, p.70

Books, Booklets:
AISI brochure, stainless market growth, 7/16, p.88
ASTM (compilation) standards on light metals and alloys, 10/1, p.94
Basic industrial electronic controls, 7/9, p.85
Foreign trade booklet (import-export procedures), 10/22, p.226
Manufacturing processes, materials, 7/9, p.85
Market and sales potentials, IE, 7/9, p.85
NAM: Economic implications of union power, 10/1, p.78
Research methods in economics and business, 10/1, p.94
SBA guidebook—government research and development opportunities, 9/17, p.126

Boring:
French jig borer (for storage drums) excels at Sperry Gyroscope Ltd. (England), 8/20, p.67

Brazil:
New plant, Sao Paulo, to make bearing steel, 10/8, p.75

Brazing:
Preparation of cast iron parts for brazing, 7/9, p.69

Bridges: See Construction

British Iron & Steel Research Assn.:
Electric arc furnace control cuts costs, 12/31, p.12
Fluid cushion principle revamps strip transport (Hovey Pulley), 8/6, p.72
Spray refining report, 8/20, p.20

Broaching:
Caterpillar: Machining spline teeth in solid steel forging, 10/29, p.40
Square holes broached in tube, 12/3, p.84

Brookings Institute:
Publishes Massel's antitrust book, 12/24, p.68

Buffing: See Electroplating, Plating

Building Codes: See Construction

Business (Economy):
1961-63: Economic indicators (chart), 7/16, p.56
1962: Metalworking executives outlook (STEEL survey), 7/9, p.21; 11/12, p.25; 11/26, p.71
1963 (editorial), plan now for, 7/2, p.17
1963 forecasts, (Nat'l City Bank), 9/17, p.17
1963: Economists (Univ. Mich. conference) see little change, 11/26, p.27
1963 (STEEL panel): Foresees no big change, 10/1, p.21
1963: What metalworking managers expect, 11/26, p.71
Business recovery percentages (1961 and previous), 10/15, p.18
Congress economic hearings: How good are profits and the economy?, 8/13, p.25
Europe's economy since '50 (Prof. Boarman), 7/2, p.51
Depreciation reform viewed by economists, 7/23, p.97 and 11/26, p.27
Marketer (GE-McKittrick) blames managers for 'ills' of business, 7/2, p.25
Professors (Mich. and Calif.) submit views, 8/13, p.26

Business (Markets):
Castings outlook, 9/24, p.28
Durable goods, 9/17, p.187 and 11/26, p.27
Fasteners, 8/27, p.53
Electronics, 9/24, p.28
Foundry equipment, 9/17, p.27
Machine tools, 11/26, p.25
Nonferrous metals, 9/24, p.29
Steel castings, 9/24, p.28; 11/12, p.62

Business Ethics:
Rev. Garrett, S. J.: Chides business for moral lapses, 7/23, p.100

Business Leadership: See Management

Business & Defense Services Adm.:
Reorganization for faster service, export emphasis, 11/5, p.27

Buy American: See Government

C

CPM: See Management Systems

Canada:
Auto production (big five), 11/26, p.139
Cancels tariff surcharges on iron and steel rods, etc., 9/17, p.29
Electric firms set for growth, 11/19, p.29
Export promotion campaign readies for spring, 9/17, p.31
Tariff ruling on automatic transmission, U. S. partmakers stand to lose, 11/26, p.139
Import action competitive to U. S. metalworking, 7/16, p.25
Macaulay: Canadians push harder to get better trade balance, 11/19, p.29
Multiple mold continuous casting machine (Weybridge), 8/6, p.93
Stake in Common Market, 11/5, p.153
Steel producers make extra wide sheets (aim at auto market), 10/1, p.27
Will Canada's tariff hikes force Japan to greater trade with Reds?, 7/23, p.109

Canadian Institute of Steel Construction:
Elects, 7/9, p.27

Can Manufacturers Institute:
Steel usage in '61, 10/8, p.17

Cans, Canmaking:
Aluminum cans-seamless, blowing method, 10/15, p.33
Aluminum container 'blowing' machine, 12/31, p.10
Aluminum lined fiber cans—oil industry, 9/24, p.19
Competition for materials (steelmakers bet on thin tin plate), 7/16, p.24
Fiber foil cans, 12/31, p.11
Seam unit closes metal cans, 10/22, p.161

Capacity:
L-D steel capacity (world), 7/2, p.85
Steel, openhearth and oxygen capacities in nation, 9/17, p.100

Capital Expenditures:
Automakers (property, plant, equipment), 7/2, p.35
Chemical industry, 9/10, p.18
Construction '63, forecast, 12/3, p.27
Depreciation reform bill, effect on outlays, 7/16, p.9
Durable producers, NICB survey, 8/20, p.17
Equipment builders for Sept. and outlook for year, 10/22, p.25
Machine tool equipment builders for Oct., see upward trend, 11/26, p.25
Metalworking equipment, '62, 7/2, p.21
New plants and equipment, 4th quarter (SEC and Commerce Dept.), 9/10, p.27
New plant and equipment, '63 forecast, Commerce and SEC, 12/10, p.17
Philadelphia firms cautious about capital spending, 12/10, p.18
Railroads '63 forecast, 12/31, p.39
Utilities, 7/23, p.9

Case Institute of Technology:
Research on safety factors for steel castings, 11/5, p.100

Cash-Flo: See Financing

Casting, Castings:
Aluminum casting ingot upgraded, 9/17, p.128
Cast nylon parts, heavy duty wear, 8/20, p.74
Continuous casting aluminum for strip (Crown Aluminum), 11/26, p.84
Cold mold casting method pilot tested by automaker, (aluminum door hinges), 10/22, p.33
Continuous casting is coming (to U. S.), firms experimenting, 9/17, p.87
Continuous casting: World facilities in operation and under construction, 9/24, p.98
Continuous casting (Concast) license rights to Koppers until '66, 12/3, p.29
Continuous casting machine, Atlas Steels, 10/29, p.18
Continuous-multiple mold casting equipment (Weybridge), Canada, 8/6, p.93
Continuous casting for small mill (Premier Steel), 11/19, p.88
Continuous casting study, National Steel, 10/15, p.17
Continuous slab casting (Dillinger Huttenwerke), cover story, 9/17
Continuous slab casting machine (Panteg Wks., England), 12/17, p.158

Core, mold facing binder, 9/17, p.125
Immcor process slashes ingot mold cost, 7/9, p.73
Investment casting, advancing technology provides more savings, 7/16, p.80
Investment caster, semiautomatic plant: Technology widens investment casting potential, 11/19, p.84
Moldmaking (shells), using fluidized bed of granulated ceramic, 7/9, p.10
Preparation of gray and malleable iron castings for brazing, 7/9, p.69
Radiation scanner-castings, 7/16, p.79
Radioactive tracers analyze turbine shell castings, 11/12, p.35
Safety factors can be cut for steel castings (Case Inst. study), 11/5, p.100
Semicontinuous vacuum casting line, (Kolcast), 10/15, p.31
See also Diecasting

Casting Industry:
Gray iron and ductile iron sales, 10/22, p.31
Steel casting sales outlook, 9/24, p.28 and 11/12, p.63

Ceramics:
Ceramic cutting tools, heavy cuts, 10/15, p.86
New magnesium oxide ceramic, electrical insulator, 7/30, p.10

Chemicals:
Glass tempering by chemical treatment, 10/22, p.164

Chicago:
Chicago Museum of Science & Industry exhibit, 12/17, p.25 and editorial p.15
Industrial development projects, 9/24, p.31

Cleanrooms:
Laminar flow cleanroom, ultracleanliness for Space Age operations, 12/3, p.33

Cleaning, Blasting:
Shotblaster track mounted, removes scale on bar stock, ups machine utility, 7/23, p.133

Coal:
Coal fired gas turbines, 8/20, p.20
Coal injection system (see Steelmaking)
Coal pipeline, S. Calif., proposed, 11/26, p.18
Pulverized coal trims blast furnace costs, 10/15, p.27

Coatings: See Finishes, Coatings

Coding:
See Standards, Specifications

Coils:
"Jumbo" aluminum coils, 7/23, p.136
Units for coil processing and shotblasting magnifies machine utility, 7/23, p.133

Coin Operated:
Car washing, outlook, 7/30, p.11

Cold Drawing:
Drawing stretches use potential of steel extrusions, 8/20, p.64

Cold Heading:
Subminiature heading turns a profit at Harvey Hubbell, 9/10, p.78

Collective Bargaining: See Labor

Colleges:
Allen: How valuable is a college degree, 7/30, p.40
Fitterer (U. of Pittsburgh): Steel should support metallurgy departments, 11/5, p.156
Wheadon (Syracuse Univ.): College research needs industry support, 8/6, p.153

College Graduates:
Hiring costs up, 12/24, p.14

Columbia University:
Nuclear preparedness symposium, 10/29, p.27

Common Market: See Europe

Communication:
Armco newsreels, employee relations, 11/19, p.106
City Tool: A new lesson in managing people, 11/19, p.64
Employees motivated by attitude surveys, 7/23, p.123

Communists:
Should we trade with the Communists (STEEL survey), 8/20, p.69
See also Foreign Trade

Company Directors:
Role of company board misunderstood (Prof. Houle), 9/17, p.194

Company Operations:
City Tool: A new lesson in managing people (leasing and production partnership), 7/9, p.64
W. G. Hunt: One-man business wins E-for-Export Award, 7/9, p.27
Racine Hydraulics: Marketing switchback expands sales potential, 11/5, p.90

Components:
3rd quarter survey, 8/6, p.25
4th quarter survey, 11/5, p.29

Compressed Gas Assn.:
Affiliate, Inter'l Acetylene Assn., 11/12, p.35

Computers:
APT III (numerical control contouring) gets programing aid from GE, 9/17, p.33
Accounting use, clock times computer, 9/24, p.20
Automatic secretary may type diction (voice patterns), 7/16, p.58
Cement made in computer controlled plants, outlook, 12/24, p.16
Computer-education gap: Editorial—born too soon, 7/16, p.17
Computer frees engineers to think big (Meissner system vs. conventional system), 12/10, p.71
Computer-mathematical formulas (mechanical properties of a given alloy), 8/13, p.20
Drafting machine-numerically controlled for aircraft-missile parts, 9/10, p.26
FACT translates into German, microsecond memory, 9/17, p.18
IBM-Piore addresses instrument-automation conference, 10/22, p.29
Information systems, market growth, 9/24, p.17
Isolation of faults in computer, 9/10, p.20
Literature searching system, ASM, 12/17, p.96
Madaline (Adaline memistors) humanlike functions, 8/20, p.29
Memory computer, typewritten answers (Italian Fair), 9/24, p.20
Paper mill computer, 11/12, p.61
PERT and CPM: Communications shorthand for management, 11/19, p.75
Pico: Subminiature computer guides space or airborne vehicle, 12/17, p.96
Quality control equipment computers, 9/24, p.85
Warehouse robot order filling (automatic, computer oriented), 10/1, p.40
See also Steel Mill Controls

Construction Equipment:
'Bites of earth'—rotate track for a walking dragline, 8/27, p.89

Construction Industry:
1963 spending outlook, 12/3, p.27
Building codes-outdated limit new materials, 12/17, p.103
Building pace good sign for economy, 7/2, p.39
Building strength in 1963 to come from public sector, 10/15, p.29

Consulting Services:
User-supplier consultation saves $50,000 on grinding wheels, 7/16, p.85

Consumer Durable:
1962 outlook, low point passed, 7/9, p.22

Consumer Spending:
FRB quarterly survey, 11/26, p.17

Consumption:
West's consumption of finished steel in '62; '61 receipts in seven western states, 9/10, p.28

Container Vans: See Shipping

Containers: See Packaging

Coolants: See Lubricants

Copper: See Nonferrous

Copper & Brass Research Assn.:
Labeling materials (materials awareness program), 12/17, p.27

Copper (Trade Group):
New group planned, tentative name U. S. Copper Development Assn. (production-fabrication), 9/17, p.27

Copper Powder: See Powder Metallurgy

Cornell University:
Prof. Brooks speaks on agency shop at Stanford, 10/1, p.84

Corporations:
Should big business be free or nationalized?, 10/8, p.17

Corrosion:
Aluminum process improves stress corrosion resistance, 10/15, p.112
Auto trim problem solved by stainless, 7/23, p.93
Battelle studies corrosion and deposits caused by combustion gases in boilers and turbines, 10/22, p.165
Chrysler adds chemical salts-fluorides to anticorrosion dips, 11/5, p.104
Copper protective coat (ICRA), 12/10, p.28
Corrosion protection starts with design, 11/12, p.70
Pipe problem solved by epoxy lining coat, 7/16, p.86
Powdered polyethylene flame sprayed for metals protection, 9/10, p.33
Refractory material resists molten aluminum's corrosive attack, 10/8, p.72
Refractory metals, protective coating, 8/27, p.50
Steel piling driven into ground noncorrosive, 10/1, p.16
Titanium corrosion proofs equipment at petrochemical plant, 8/13, p.18
See also Coatings

Cost Cutting:
Cerro Copper & Brass (Knisely): Pinpoints cost shortcuts of nonferrous forgings, 7/2, p.65
Emerson Electric: New goals for cost cutters, 7/16, p.71
Internal auditing team checks overhead, 7/9, p.62
Nat'l Metal Abrasive: Self-made cost squeeze pays off, 11/26, p.88

Crankshafts: See Hardening

Critical Path Method: See Management Systems

Cryogenics:
Cooling systems for masers close to absolute zero, 8/27, p.31

Crystals:
Navy research for thermoelectric converters, 9/10, p.81

Cuban Crisis: See Defense

Customer Orientation:
Square D-Maechtlen: New goals for customer orientation, 10/8, p.59

Customer-Supplier:
City Tool Corp.: A new lesson in managing people, 7/9, p.64
Editorial: The customer speaks up (mill supplier), 10/15, p.15

Cutting, Shearing:
Plasma cutting machine, 12/3, p.84
Traveling shear (flashing for siding and roofing), 9/10, p.18
See also Tools (Cutting)

D

Data Processing:
Digital data system, wire testing, 9/17, p.116
Logging data speeded by telemetering device, 9/17, p.117
See also Computers
See also Steel Mill Controls

Debugging: See Machine Tools

Deburring:
Automatic equipment, 12/3, p.84

Defense:
Agencies alerted in Cuban crisis, 10/29, p.26
Cuban crisis poses questions: Increased defense spending, and corporate tax reduction?, 11/5, p.26
Defense program aids firms to get overseas orders, 11/26, p.28
New York preparedness meeting, 10/29, p.27

Defense Contracts:
AF (Bradley): Cost-plus contracts emphasized, 12/31, p.16
Aerospace forecasts material buying in 1962-72, 12/3, p.25
Aircraft contracts to Gen. Dynamics and Grumman, 12/3, p.28
Identical bidding lessening, 8/27, p.18
Incentive contracting pays off for Defense Dept., 11/5, p.112
Military awards (States), 7/9, p.23 and 11/26, p.19
Military markets complex (Trantham Jr.), 9/10, p.170
West Coast contracts climb, 11/12, p.27

Degassing:
British techniques, TO, 8/27, p.20

Design:
Corrosion protection starts with design, 11/12, p.70
Safety factors for steel castings, 11/5, p.100

Depreciation:
Bulletin F: Cut indicated, 7/2, p.22
Bulletin F dead: At last new guidelines, useful lives 32% shorter, 7/16, p.9 and 21
Will new tax policy spur the economy (metalworking executives surveyed), 7/23, p.21
Chart: How to use new guidelines (all metalworking industries listed), 7/16, p.11
Chart: Why depreciation reform was needed, 7/23, p.24
Common questions Treasury Dept. answers: What you should know about the new depreciation policy, 7/23, p.127
Depreciation reform: Another weapon in marketing?, 7/23, p.25
Depreciation reform: For details, here's what you can do, 7/23, p.26
Depreciation reform: How it came about (inside story), 7/23, p.23
Depreciation reform viewed by economists, 7/23, p.97
Depreciation reform viewed by tax experts (Peloubet and Barlow), 7/23, p.24
Economists asked for tax credit ideas, Kennedy, 9/17, p.28
Economist (Eisner) knocks tax credit plan, 10/15, p.166
Editorial—Tunnel Vision (Bulletin F reform), 7/9, p.17
Editorial—Up to Industry (new reform), 7/23, p.17
Metalworking, reform more than asked for (vs. bracket system, and Bulletin F simple reduction), 7/23, p.9
Metalworking: Guidelines pose next year tax problem, 10/1, p.23
NAPA gages effect of policy change on capital spending plans, 9/10, p.17
NMTBA and AMTDA seminar: Guidelines haven't provided sales spur, 10/1, p.23
Senate Finance Committee action, 7/16, p.21 and 8/6, p.17
Senate group clouds tax outlook, 7/9, p.23
States follow suit on liberalizing depreciation, 12/24, p.13
Tooling, new depreciation guidelines, 10/20, p.25
World depreciation rates comparison (list), 7/9, p.55
World depreciation practices, how U. S. ranks, 7/16, p.21

Diecasting:
Aluminum diecasting production, '63 forecast, 9/10, p.27
Art and technology combine—to make good diecastings, Alcoa facility at Edison, N. J., 12/10, p.74
Basement window zinc diecast (wins award), 9/17, p.121
Battelle study, plated zinc diecastings, 7/30, p.56
Diecasting core rods from molybdenum alloy, 7/2, p.70

Doehler-Jarvis: Aluminum engine, coating for cylinders, 11/5, p.94
Frame poured for big diecasting machine (pic), 8/27, p.31

Dies: See Tools & Dies

Diffusion Bonding: See Bonding

Direct Reduction:
Yawata Iron (Tokyo) licensed to use, 10/29, p.28

Distributors:
Eastern steel distributor cuts prices on H. R. carbon, 8/13, p.92
Prices, profits plague aluminum distributors, 11/12, p.31

District Man: See Salesmen

Diversification:
Pall Corp.: New goals for small company diversification, 8/27, p.41

Dividends:
Republic cuts quarterly dividend, 8/27, p.27

Dollar: See Balance of Payments

Drafting:
Drawing machine-numerically controlled (aircraft-missile parts), 9/10, p.26
Technique simplifies circuit tracing, 9/24, p.33

Drawing, Bending:
Aluminum shapes extruded, cold drawn, 8/20, p.85
Extrusion-cold drawing process: Use potential, 8/20, p.64

Drilling:
Numerically controlled drill eliminates $25,000 worth of drill jigs, 10/8, p.64
Tape controlled turret drill for stainless, 10/8, p.69

Drop Forging Assn.:
Business indexes firmed, 10/1, p.22
Elects Stocking president, 7/2, p.26

Durable Goods:
'63 business barometer, orders up, 11/26, p.27
Steel slump slows business, 9/17, p.187

Dust Collectors & Filters:
Air filtering system for clean room (laminar flow), space age operations, 12/3, p.33
Blast furnace gas wet cleaned, venturi system, 12/3, p.78

E

Earnings: See Financial

Earthmoving Equipment:
9000 ton shovel powered by 24 motors, 9/17, p.125

Economic Education:
Associations can lead in educating, 8/6, p.153

Economy: See Business (Economy)

Editorial:
American Roulette (longer warranties needed), 11/19, p.15
Born Too Soon (computer-education gap), 7/16, p.17
Double Standard (Gov't Printing Office wages), 7/30, p.17
Ecomic Myopia, 8/27, p.15
Free Engineering is Out!, 8/6, p.15
Hi, Bookkeepers! (IRS expense account law), 11/26, p.15
Lesson in Growth (Japan), 12/24, p.11
Less Free Engineering! 11/5, p.15
Let's Get Competitive (world market), 12/10, p.15
Let's Tell the People (profits), 9/24, p.15
May God Have Mercy on Us (machinery builder statement), 10/22, p.15
Needed: Profit Planning!, 10/1, p.11
Parable of the Prices, 9/17, p.15
Plan now for 1963, 7/2, p.17
Profit Before Taxes?, 10/29, p.15
Profit Pinch, 8/13, p.15
Profit Pinch—Operation bootstrap, 11/12, p.15
Profits and Jobs, 9/3, p.15
Progress—Not An Option (Chicago exhibit), 12/17, p.15
Re-equip to Survive!, 12/3, p.15
The Customer Speaks Up, 10/15, p.15
The Rising Tide (for '63), 12/31, p.7
Spending (federal) Cut Too? (applauds depreciation reform), 8/20, p.15
Tunnel Vision (depreciation reform), 7/9, p.17
Up To Industry (use of depreciation reform), 7/23, p.17
What Can We Do For You? (Japanese services), 10/8, p.15
Why Waste Engineering? 9/10, p.15

Education: See Colleges

Electric:
Ceramic (dev.) conducts and insulates, 7/30, p.10
Motors get Doryl (varnish) insulating resin coat, 9/24, p.95
Printed circuit conductors formed from copper powder, Bell Telephone, 12/10, p.80
Printed circuits cost a dime, TO, 10/22, p.20
Spring generator design, 10/1, p.39
See also Thermoelectrics

Electric Power:
Electric power produced by spark plugs, 7/23, p.12
Fuel cell powers golf cart, 12/10, p.20
Growth potential for transmission line cable in Western U. S., 8/20, p.71
Jet engine noise converted to power, 7/2, p.12
Jets to generate electricity, CG&E standby plant, 8/20, p.29
MHD (magnetohydrodynamics), high temp challenge, 8/27, p.29
Revolution in power generation (Dr. Engstrom-RCA), 9/3, p.18
Solid state dc power supply for metal rolling (GE), 8/20, p.85
Welded tubing scores in power-plant applications (CEI), 10/15, p.84

Electrolytic:
New line meets need for tin plate in Australia, 8/13, p.76

Electron Beam (See Welding)

Electrophoresis: See Metal Deposition

Electronics:
1963 forecasts new glamour markets (dev.s), 9/24, p.28
1966 sales forecast, 10/15, p.31
Article: Are you ready for automatic assembly?, 12/17, p.74
Article: How we'll measure tomorrow (testing equipment), 12/31, p.20
Corning mass produces thin film products, 8/20, p.86
Information systems, market growth, 9/24, p.17
Reliability study (Army-Aeronutronic Div.), 11/26, p.140

Electroplating, Plating:
Bright nickel, new electroplating process, TO, 9/3, p.20
Cadmium plated parts—hydrogen embrittlement controlled, 8/20, p.31
Improved plating system eliminates buffing dept. (Superlume), 7/9, p.67
Plated zinc diecastings study, 7/30, p.56
Spot plating master cams, faster tech., 10/1, p.44

Employee Compensation:
Wakefield Corp.: Individual plan (chart), 8/27, p.48

Employee Motivation:
Attitude surveys can pay off, 7/23, p.123

Employees:
See Communications
See Training

Employment, Unemployment:
Factory employment up, 7/9, p.24
Johnson (New York bank): How much profit for full employment?, 11/5, p.17

Engineering:
Free engineering is out (editorial), 8/6, p.15
Free engineering, Reynolds Aluminum, 12/17, p.27
Less free engineering (editorial), 11/5, p.15
New goals for engineering (McCune), 7/2, p.53
Who should pay for equipment engineering?, 11/5, p.88
Why waste engineering (editorial), 9/10, p.15

Engineers:
Autodom worry: Engineers want glamour of space age jobs, 9/3, p.115
Automation engineers needed, 8/27, p.18
College freshmen, engineering enrollment drops, 12/17, p.104
Engineer scarcity alarms manpower commission group and NASA, 8/6, p.86 and p.87
Industrial engineers enter new era, 11/12, p.27
Professional-client relationship should be preserved, 7/30, p.9
Recruiters seek Mich. U. research-development engineers, 9/10, p.94
Recruiting Center set up in Calif. by Careers Inc., 8/13, p.28
Science engineering, rivalry for students?, 9/10, p.170
Women engineers, bias waning, 9/17, p.194

Equipment Builders:
Capital spending, new order outlook, 10/22, p.25
Editorial: Re-equip to survive, 12/3, p.15

Europe:
Common Market:
Aluminum duties levied, 8/13, p.116; 10% tariff sought, 12/31, p.16
Antitrust filing deadline, 8/13, p.80
British labor opposition, 10/15, p.164
Ends restriction on worker movement, 8/13, p.116
Defense spending (countries), 11/26, p.28
Economic boom (Boarman, Bucknell Univ.), 7/2, p.51
Eurosteel boss (Malvestiti) comments on ECSC steel production by mid-sixties, 10/1, p.75
International finance-World Bank memberships, 9/24, p.137
Taxation in Western Europe, 10/15, p.164
See also Foreign Markets

Executives: See Management

Explosives:
Concrete dies show little promise in forming (Martin), 8/27, p.61
Fluidized bed coating, explosive process, 12/24, p.36
HERForming technique, 8/6, p.64
HERForming advantages, 8/20, p.20
HERForming units, 8/6, p.20 and 10/22, p.169

Export Awards:
Metalworking firms get awards at Chicago Fair, 8/13, p.86
W. G. Hunt accepts E-for-Export Award (one-man firm), 7/9, p.27

Exports, Imports: See Foreign Trade

Extrusions:
Aluminum extrusions, fast heat with electric induction unit, 8/13, p.35
Aluminum shapes extruded, cold drawn, 8/20, p.85
Cold-drawing process (Ujine-Sejournet) of steel stretches use potential, 8/20, p.65
Columbium alloy forgings—700 lb produced for nuclear applications by Wyman-Gordon, 8/13, p.20
Extrusion defects from differences in flow behavior studies, 8/13, p.20
Fluid extrusion, pressures of 350,000 psi used, 11/19, p.31
Fluid ram used in extrusion of difficult metals, 12/3, p.20
Stainless steel for tubes extruded at Swedish mill, 11/26, p.92

F

Fabrication & Assembly:
Application ideas for metals and alloys (Metal Show), 11/5, p.94
Are you ready for automatic assembly? 12/17, p.74
Assembly tech. uses liquid sealant (anaerobic polymer), 8/20, p.72
Door lock assemblies-Transferline at Ternsted Div., 9/10, p.77
Fabrication of ceramic parts in Navy gun breech, 11/19, p.98
Sheet steel fabricators switch to precoated stock, 11/26, p.86
Welded steel door-custom fit for nuclear powerplant, 10/29, p.40

Farm Equipment:
1963 sales outlook, 8/13, p.17; 9/24, p.18
Deere's mechanized hot impact forging line: Beating profits into plowshares, 10/1, p.45
Ford predicts world market, 10/1, p.76

Fastener Industry:
Industry report, 8/27; p.53

Fasteners, Fastening:
Automakers use plastic clips, 7/30, p.34
Nails bonded to wood, 10/1, p.38
Rivets help toymaker throttle train troubles, 7/16, p.76
Screws: Subminiature cold heading, 9/10, p.78
Tension fastener bolts sheets (refractory metal), 9/24, p.106

Ferrites:
GM process for making ferritic parts, 10/8, p.31

Filtration:
Air filtering system (laminar flow) for clean room, space age operations, 12/3, p.33
Filtration system separates grinding oil, debris, 10/15, p.113
Ultrasonic cleaner with filtration system, 8/13, p.31

Financial Committees:
NICB study: Committees used to manage financial and accounting matters, 9/24, p.27

Financial:
Automakers, 3rd quarter, 11/12, p.25
Median personal income outpaces rise in consumer prices, 9/10, p.18
Metalworking earnings, 3rd quarter, 11/12, p.25
Steel earnings, 2nd quarter, 8/6, p.27
Steel earnings, 3rd quarter, 11/5, p.27

Financing:
Deterrent to small company growth, 8/27, p.44
K&T machine tool Cash-Flo plan for buyers, 12/10, p.26

Finished Steel:
Seven Western states by region, consumption, 9/10, p.28

Finishes, Coatings, Paints:
Aluminized steel strip—coating refinement with sodium vapor process, 9/24, p.27 and 10/8, p.27
Copper protective coating system (ICRA dev.), 12/10, p.28
Doryl (laminate varnish), insulating resin for electric motors, 9/24, p.95
Electrostatic hand spray gun dev., 10/8, p.28
Flame sprayed polyethylene resists metal corrosion, 9/10, p.33
Fluidized bed for coating, explosive method, 12/24, p.36
Luminescent paint aids night mobility (Army use), 9/24, p.104
Pipe corrosion solved with epoxy lining coat, 7/16, p.86
Plastic coated pipe for underground, 10/15, p.102
Polymeric coating bonds nails to wood, 10/1, p.38
Precoated sheet steel trend (Bethlehem), 11/26, p.86
Refractory coatings protect refractory metals, 8/27, p.50
Silicone coatings unveiled, 7/23, p.27
Silicone fluids for dielectric coating, 10/15, p.93
Silicide coated molybdenum parts, 9/17, p.116
Silicone carbide coating, Ti-Kote, 7/2, p.70
Terne coat line, coils and sheet (Armco), 8/27, p.35

Tin-aluminum on tantalum for Air Force, 9/10, p.20
Titanium vs glass coatings, 7/2, p.70
Wire coating (Hinac), 10/22, p.168

Fire Protection:
Fire hazard cut by hydraulic fluid (Gen. Steel Industries), 11/19, p.86

Flame Heating:
How to choose in surface heating between induction, flame hardening, 12/17, p.90

Florida:
Industrial growth, 9/17, p.124

Flowmeters: See Instrumentation

Fluid Cushion:
Fluid cushion (Hovey Pulley) revamps strip line (BISRA), 8/6, p.72

Flux:
Self-fluxing iron ore pellets tested, 7/2, p.26

Foreign Competition:
Auto imports (cars), dramatic shift (1st 4 mo. trend), 7/2, p.50
Buy American Act (see Government)
Editorial: Let's get competitive, 12/10, p.15
Handicap: Our management superburden, 7/9, p.56
How cold header bypassed import threat, 9/10, p.78
How U. S. stacks up against Western Europe (Chase Manhattan Bank), 7/2, p.59
Hunter (Howe Sound): How to beat foreign competition, 10/22, p.155
Japan, can she compete in world auto market? 12/3, p.109
Japan, facts behind steel rumors, 9/24, p.25
Japan represented in steel dumping charge by Atty. Stitt, 11/12, p.17
Japanese feel order pinch following Kaiser price cut, 11/12, p.27
Japan's toolbuilders set to tackle world market, 11/26, p.29
Japan toolbuilders begin U. S. sales push (members at Chicago JMTBA), 12/10, p.31
Japanese team maps steel pipe promotion, 9/17, p.31
Kaiser cuts prices to meet Japanese competition, 10/8, p.25
Navy and foreign steel purchase review (furor over German order), 7/16, p.27
NEMA beset by problems, 12/10, p.88
Obbard (U. S. Steel): Steelmakers feel pinch, 11/19, p.28
Roberts (Vanadium-Alloys): Oppose gov't encouragement of steel imports, 9/10, p.170
Stainless sheets floor U. S. markets (French and Japanese exploit tariff loophole), 10/15, p.26
Steel dumping, importers cry 'foul', 10/8, p.25
Vinson (GE): We must re-evaluate our position in world market, 10/29, p.81
Wegenstein (Switzerland): European economic integration a challenge for American business, 12/31, p.64
Wiremakers react to cost-profit squeeze, 7/30, p.24
Volkswagen third biggest carmaker, 9/17, p.31

Foreign Investments:
Automen urged to look overseas for growth, 9/10, p.160
Chrysler outlines overseas expansions, 8/20, p.28
Costs (capital expenditure) for investors in steel business abroad; Kellogg Co. report, 8/6, p.88
Foreign investment in U. S., 7/30, p. 48
Foreign investment values in U. S., 10/22, p.158
U. S. companies grow faster overseas . . . our competitive position, 7/2, p.58
U. S. investment pattern has shifted, 8/6, p.31
U. S. firms continue foreign expansion, (chart) activity by industry, 10/29, p.29
U. S. firms plant and equipment expenditures, 1962, 11/12, p.18
U. S. investments overseas peaking out? (OEB), chart—U. S. direct foreign investments (countries), 8/27, p.29
U. S. manufacturers' investments by end of '61 (chart-countries), 12/10, p.33
West Germany gets U. S. investments, 12/10, p.31
Wyman-Gordon, Indian plant, 7/23, p.27

Foreign Markets:
Africa welcomes U. S. capital, 12/31, p.62
Arab Republic, does it deal only with Reds? (Arab Minister Sidky replies), 12/17, p.28
Czechoslovakia, crude steel capacity grows, 7/30, p.61
Finland spurred by metalworking growth, 8/20, p.121
Ghana plans electronics industry, 8/6, p.18
India: Fertile field for U. S. investment (Jain), 12/31, p.64
Israel, expanding market, 9/17, p.191
Japan (see Foreign competition)
Latin America—U. S. should encourage them to private investments, 8/13, p.115
Latin America, a need for private funds, 10/29, p.27
New Zealand may ease curb on U. S. exports, 8/13, p.31
Saudi Arabia, 12/10, p.124
Singapore development program, 12/10, p.123
South America: American business in S. A. tax free, deterrent to Communism, 11/26, p.150
Spain, investment prospects, 11/19, p.139 and 12/24, p.65
Trinidad and Tobago, market growth, 9/17, p.191

Foreign Trade:
12 ways to upgrade your overseas sales efforts: Rundt, Trader's Horn, 7/23, p.110
AID: Commodity expenditures to U. S. manufacturers pays off, 9/3, p.27
AID: Excess machine tools (gov't inventory) to underdeveloped countries, 11/19, p.18
AID: Industry can learn from overseas training programs (Coffin), 11/12, p.116
AID: Marketing seminars for Venezuela set up by Tunstead (Koppers), 10/8, p.106
Canada readies export promotion, 9/17, p.31
Canada displays-tool show, 10/15, p.28
Canadian import action competitive to U. S. metalworkers, 7/16, p.25
Canada's trade balance with U. S., 11/19, p.29
Commerce Dept. advises on trade barrier problems, 9/17, p.191
Common market (see Europe)
Export co-ordinator Daniels, 8/20, p.125; sets up task force (executives-educators), 11/12, p.78
GATT meeting called by U. S. and Canada, 12/10, p.90
Farm-tractor markets to Asian countries, 7/23, p.109
Foreign import liberalization (countries), 7/16, p.68
Guidebook (Export & Import Procedures) by Morgan Guaranty Trust, 10/22, p.226
Japanese imports into U. S., 9/24, p.25
Machine tools, will foreign orders top '61's peak? 9/3, p.25
Pacific trade urged by California lawmakers, 10/22, p.225
U. S.-Communists trade? STEEL surveys readers, 8/20, p.69
U. S. - Communist trade: House seeks tighter rules on exports, 9/24, p.31
U. S. shipments to Reds drop in 2nd quarter, 9/10, p.81
U. S. Trade Mission finds Great Britain market for metalworking equipment, 7/30, p.26
U. S. export of metal products, good European market (change in % of income spent), 7/2, p.50
U. S. traders must adapt to changing world patterns; Dr. Randle (Booz, Allen), 8/6, p.31
Volkswagen president slams U. S. suppliers, urges free world trade, 10/29, p.69

Forming, Bending:
HERForming (high energy rate): Machines turn violence into forming profits, 8/6, p.64
HERForming, advantages, 8/20, p.20
HERForming units, 8/6, p.20; 10/22, p.169
Water-frozen used to shape aerospace metals, 10/8, p.33
Massive bending machine forms plates for ships, 9/3, p.34
Shear forming missile-rocket parts, 10/1, p.43

Forging, Forgings:
Belgian firm tools up to make larger forgings, 8/27, p.33
Forger pinpoints cost shortcuts: Knisely (Cerro Copper), 7/2, p.65
Impact forging of farm machinery parts (Deere mechanized line), 10/1, p.45
Spin forging improves metal flow (Armour), 10/22, p.33
See also Presses

Foundries:
Alberta, new steel foundry, 12/24, p.24
Alcoa's Edison, N. J. die and permanent mold casting plant, 12/10, p.74
Consolidated Foundries (Meeder): Advancing technology in investment casting (alloys), 7/16, p.80
Dravo: Shaker ladle purifies foundry, merchant iron, 10/8, p.63
Erie Forge & Steel, radiation scanner-castings, 7/16, p.78
Hewitt-Robins makes ingot mold shakeout vibrator, 9/10, p.77
Linde plasmac furnace: Foundries get space age furnace, 10/15, p.77
New Orleans government aluminum foundry equipment sold, 12/3, p.35
Premier Steel: Small mill thrives by continuous casting, 11/19, p.88
Solon Industries: How to bolster a declining foundry market (permanent mold line for aluminum castings), 10/29, p.42
Whirl-Air-Flow: Cupola injector turns chips into profit, 7/2, p.57
Trend in foundry equipment sales, 9/17, p.27
Trend in steel castings, sales, 11/12, p.63
See also Casting, Castings

Foundry Equipment Manufacturers Assn.:
New orders, report, 9/17, p.27

France:
Average annual growth rate, manufacturing industries, 7/30, p.48
French union asks Reuther's help in car competition, 7/9, p.25
IRSID (co-op research) measures oxygen converter steel carb content, 9/10, p.98
Machine tool boom, 7/16, p.67
Pechiney's De Vitry: U. S. aluminum producers undercut, 12/17, p.160
Steel expansion planning, 9/24, p.137

Freight Cars, Freight Rates:
Computer system weighs freight cars on the move, 10/15, p.19
Cushioning device may cut damage to cargo in freight cars, 8/13, p.28

Fuels:
Japanese lighten cell using hydrogen and air for fuel, 7/7, p.12
Natural gas supplemental fuel at Stelco, 10/1, p.48
See also Steelmaking (coal injection)

Furnace, Ovens (Heating, Heat Treating):
Basic oxygen furnace lining lasts 388 heats, 8/13, p.76
Electric furnaces (steel at competitive costs), 12/17, p.33
Infrared heater at Solaronics wins efficiency rating, 8/6, p.18
Infrared plus convection improves paint drying at Chrysler, 10/22, p.162
Infrared gas oven for painting-drying, 12/3, p.82
Monitor senses furnace heat, 10/8, p.68
On-site lime kilns, 8/13, p.76
Paper repairs furnaces (Fiberfrax ceramic paper), 9/10, p.20
Plasmarc furnace at Linde (space age), 10/15, p.77
Selas circular furnace (postheating cast rotors, fractional hp motors), 12/3, p.33
See also Oxygen Furnaces

G

Gage Blocks:
Physical measurement sought by NBS, 7/23, p.112

Galvanizing:
Award to engineer: End warpage of galvanized scroll-fan housings, 7/30, p.61
Extra long galvanizing kettle for poles, (pic), 12/10, p.83

Gas: See Fuels

Gears:
Italian machine tests and corrects, 11/26, p.20

General Services Adm.:
Aluminum disposal plan, 10/22, p.28
Federal supermarkets, self-service trims red tape, 12/31, p.16
See also Stockpiles

German Industry Institute:
Profit story, 9/24, p.18

Germany:
Automaker (Vorwig-GAMA) notes tighter markets, 10/8, p.96
Big press bends heavy plates at Phoenix-Rheinrohr, 7/9, p.56
Dr. Bauer: Chides German industry for not holding line, 8/13, p.118
Container trends: Plastics, thin tin and aluminum, 8/13, p.116
Continuous casting progress (plant), 9/17, p.89
Economic outlook, 7/30, p.48
Ford introduces Taunus, small car, 9/24, p.138; pic of engine plant, 9/24, p.130
GNP vs Italy and France, 12/3, p.117
Lead, zinc prices falling, 10/15, p.96
Marking to remain—Made in Germany, 10/22, p.225
Mommsen: Site and raw materials vital factors, 7/23, p.100
More money to spend brings impulse buying, 10/1, p.76
Opel equipment line 'debugged' before shipment, 8/13, p.71
Reforms of social security system considered, 7/16, p.67
Schlieker's industrial empire shaken, bankruptcy proceedings, 8/20, p.122
Steel mills (3) to share rolling facilities, 7/16, p.67
Thyssen Works train Uganda welders, 9/24, p.137
U. S. Commerce Dept. mission report, 8/13, p.31
Worker absentee rises following sick pay laws, 9/24, p.138

Glass:
Chemical treatment makes glass strong enough to bend, 10/22, p.164
Glass controls light (contains europium or cerium), 10/8, p.20
Glass used in peening, TO, 10/8, p.20
Magnetic 'Ferroglass', 9/3, p.20

Goals:
See Metalworking Series

Government:
AID (See Foreign Trade)
Antidumping (see Steel Dumping)
Antidumping Act, 10/8, p.25
Antitrust:
Attorney's concern in antitrust policy, 11/5, p.156
Author (Massel) calls for reform, 12/24, p.68
Brown Shoe-Kinney merger, 7/2, p.10
Handy & Harman - Engelhard price fixing, 7/2, p.104
Kefauver continues on steel industry, 12/10, p.29
Steel cost data: Is steel case headed for big test? 9/10, p.25
Steel cost data deadline, 8/6, p.29; steel firms reject, 8/20, p.27; 2nd subpoena, 8/27, p.18
Steel firms win subpoena battle, 10/1, p.25

Apprenticeship Program: Goshen attacks industry—skilled labor shortage, 8/27, p.25
BDSA reorganizes, 11/5, p.27
Behrman heads domestic-international trade unit, 11/12, p.82
Buy American Act review (furor of German steel order), 7/16, p.27
Buy American differentials revisions, 8/20, p.27; AISI asks 50% hike, 9/3, p.27
Buy American, new study, 7/30, p.25 and 11/19, p.28
Buy American, replace by 'Sell American'? 12/3, p.120
Byrd: Tax cut 'fiscal irresponsibility', 7/16, p.22
Commerce Dept.-Gudeman: New look at federal spending, 10/1, p.78
Commerce Dept.-Holloman: Science discoveries slow to be applied, 10/8, p.106
Copies of Bureau of Census reports classified confidential, 10/29, p.18
Cuban crisis, defense contractors alerted, 10/29, p.26
Cuban crisis brings questions: Increased defense spending, and corporate tax reduction? 11/5, p.26
Daniels, new export co-ordinator, 8/20, p.125
Daniels, regional task force push exports, 11/12, p.78
Daniels: Replace 'Buy American' slogan with 'Sell American', 12/3, p.120
Douglas (Sen.) urges more on-the-job training, 8/13, p.26
Economic Committee hearings, 8/13, p.25
Federal research data now at 12 area centers, 7/9, p.66
Foreign trade bill passes House, on to Senate, 7/30, p.24; probable timetable, 10/8, p.29
Goshen, Labor Dept. (BAT): Skilled labor shortage? 8/27, p.25
Hart (Sen.): Packaging-labeling practices, 7/16, p.23
Hodges: Link between R&D and growth, 7/30, p.9
Hodges reports economy, 9/17, p.17
Hodges: Tax credit and depreciation reasons for modernizing, 11/12, p.17
Hodges urges foreign trade, 11/15, p.18
Inventions (300) sought to solve problems of armed forces and other agencies, 12/17, p.31
Japanese cabinet members meet with U. S., promised fair trade treatment, 12/17, p.29
Labor, will Kennedy get tougher? 12/10, p.25
Lobbying expense account under fire, 12/10, p.124
MDTA—Manpower Dev. & Training Act, 1st meeting, 9/10, p.92
MDTA (Wolfbein): Short work-week no answer, 9/24, p.140
McCarthy against tax credit section, 8/20, p.89; watched by metalworking, 9/17, p.29
Martin: A need for private funds for Latin American aid, 10/29, p.27
Mills endorses reformed corporate and personal income tax cut, 12/10, p.29
Minerals & Solid Fuels office reorganized, 11/12, p.19
NLRB revamp proposed by Rothman, gen. counsel, 10/1, p.25
NLRB revamp proposal stirs hope, criticism, 10/8, p.28
Patent rights to industry under NASA proposed, 11/12, p.28
Patman: Mergers 'cancerous' to small business, 12/10, p.91
Proxmire urges credit restrictions be loosened, 8/13, p.26
Red Trade, House subcommittee rules, 7/2, p.9
Red Trade, House subcommittee wants tighter rule on exports, 9/24, p.31
Reuss: Inventory building blamed for recessions, 7/16, p.27
Salt water conversion, program developments, 7/9, p.26
Supreme Court on seniority rights (see Plant Moves)
Taft-Hartley changes proposed, 12/10, p.26
Tax reform ideas sought from economists, 9/17, p.28
Udall: Soviet power production race, 12/3, p.19
Wage-price program (double standard for Gov't Printing Office), 7/30, p.17
Walsh-Healey cases may be studied by committee, 7/9, p.26
Walsh-Healey, conveyor industry speaks out, 7/16, p.26
Walsh-Healey minimum attacked by conveyor makers, 8/20, p.27
Walsh-Healey minimums for motor and generator makers, 10/22, p.17
Wirtz: ARA program to retrain workers, 11/5, p.18
Wirtz: Plan to fight job obsolescence, 11/19, p.94
Wirtz: Unemployment biggest problem facing organized labor as well as economy, 12,10, p.25
See also Depreciation
See also Taxes

Graphite:
AF rocket graphite study, 9/17, p.116
High temp. for oxidation resistant graphite seals and bearings, 11/26, p.20
Iridium aids graphite wear tests, 10/15, p.98
Pyrolytic graphite coats reactors, fuel particles, 8/6, p.89
Pyrolytic graphite, crucibles material, TO, 10/1, p.16

Gray Iron Research Institute:
Co-op research, a case history, 7/30, p.53

Gray Iron Founders' Society:
Advertising program results in new association, 12/3, p.35
Annual meeting, elections, award winners, sales forecast, 10/22, p.31
Elects, B, 11/5, p.35
Gray and ductile iron foundries operating capacity in May, 7/16, p.22
Motion picture on ductile iron, 8/27, p.105
Workman: Cast iron takes on space age look, 12/3, p.17

Great Britain:
Astronomer (Hoyle) blasts space program, 10/15, p.166
BISRA: Fluid cushion (Hover Pulley) principle revamps strip transport, 8/6, p.72
British Light Steel Pressings: Plastic replacement tool, 8/13, p.74
Sir Howitt: Accountants play key business role, 10/15, p.166
Sir Musgrave: Entering Common Market no aid to steel mills, 7/30, p.40
Shipbuilders shut down, 8/20, p.122
Steel mills operating capacity-June, 8/13, p.116
U. S. Trade Mission finds GB good market for metalworking equipment, 7/30, p.26

Grinding, Polishing:
Abrasive methods, steel polishing, 7/9, p.12
Advances in technology: New grinding wheels do more work (metal removal rates, fibreglas, extrusions), 7/2, p.62
Carborod (rodlike abrasive) shapes better wheel performance, 10/29, p.39
Consultation on grinding wheel specs means savings, 7/16, p.85
Crossaxis technique upgrades OD, ID grinding of spherical surfaces, 10/1, p.39
Electronic feelers speed regrinding of mill rolls, 8/20, p. 68
Filters separate oil, debris, 10/15, p.113
Precision grinding of large, irregular shapes in job shop (Thompson surface grinder at Lafayette), 11/19, p.91

Grinding Wheel Institute:
Elects, Bm, 12/3, p.35

Gross National Product:
1962 forecast, 7/23, p.10
15 year forecast, Alexander Hamilton Inst., 12/10, p.18

H

Hardening:
Du Pont: Dispersion hardening (TD nickel) gives metals high temperature strength, 8/6, p.76
IH adopts method to harden crankshafts, 11/12, p.33
Induction hardening axleshafts, cuts distortion, 9/10, p.98
Induction hardening line, fast job on steel bars, 9/24, p.90

Harvard University:
Healy: Government role in collective bargaining attacked, 10/1, p.26
Livernash: New goals for collective bargaining, 11/19, p.79

Heat Exchangers:
Fins add strength to heat exchanger tubes, 8/20, p.87
Titanium heat exchangers made in plate form, 7/23, p.136

Heat Lamps:
Portable quartz lamps ease titanium forming, 8/20, p.84
Quartz lamps check space parts, 10/1, p.28

Heat Resistance: See Metallurgy

Heat Transfer Equipment:
12 firms form co-op firm in Okla. for study of heat transfer, 9/10, p.32

Heat Treating & Annealing:
J&L bar annealing line, module-add on concept, 10/1, p.46
How to choose between induction, flame hardening, 12/17, p.90
Reverse oscillating roller action cuts unevenness in heat treating, 8/6, p.74

Helium:
U. S. to spend billion on helium conservation, 10/29, p.31

High Temperature: See Metallurgy

Homogenization: See Steelmaking

Housing:
Alcoa tests aluminum for interior-exterior uses, 12/31, p.18
Home construction plateau until 1965, forecast, 8/13, p.18
Prefab aluminum house from Florida tested in Nigeria, 7/9, p.11
Steel uses (new) in home manufacturing, 9/17, p.29
Steel uses, Armco pioneers, 12/17, p.27
Steel foundations, 12/24, p.14
Tax cut could aid building surge, 12/24, p.13

Hovey Pulley: See Fluid Cushion

Hydraulics:
Giant machine (Holland) swings slabs from table to furnace, 12/17, p.102
Hydraulic fluid cuts fire hazard, 11/19, p.86
Hydraulic fluids (MS) promise more system life (Vickers), 10/29, p.48
Hydraulic shock absorber stops 150 tons (pic), 12/3, p.78
Portable hydraulic punching equipment, 8/20, p.80

Hydrogen:
All-aluminum spheres for liquid hydrogen, 7/9, p.12
How to control hydrogen embrittlement in cadmium plated parts, 8/20, p.31
In-plant production of ultrapure hydrogen at Magnetics, 11/12, p.65
Plant to make ultrapure H_2, 9/17, p.128

I

Illinois Institute of Technology:
Armour (Read): Co-op boon to small firms (cover), 7/30, p.51

Incentive Contracting:
See Defense Contracts

Incentives:
Incentive plans for middle, lower managers pay off, 10/15, p.98
Suggestion awards for employees, 10/29, p.19
Suggestion awards pay off for employee at Ford, 11/26, p.150
Wakefield: Two edged incentive plan means wider profit margin, 8/27, p.48

Income: See Financial

India:
Atomic power plant, Tarapur (GE contractor), 10/15, p.164
Goals of Third Plan, 9/17, p.192
Hewitt-Robins and other firms help build Tata-Robins-Fraser plant, 9/24, p.33
Iron ore exports predicted for '70s, 12/17, p.158
Machine tool market, 9/24, p.138
U. S. aid for defense industries, boom for metalworking, 11/19, p.18
U. S. aid for steel plant, 10/29, p.18

Indiana:
Bethlehem sells land for Lake Michigan port (Indiana dunes), 8/20, p.90
Bethlehem reveals plans for Indiana Dunes mill, 12/10, p.26

Induction Heating:
How to choose in surface heating, induction vs. flame hardening, 12/17, p.90
Induction furnaces melt 1200 lb charges, 8/20, p.88
Induction hardening line, fast job on steel bars, 9/24, p.90
International Harvester adopts method to harden journal areas of crankshaft, 11/12, p.33
Induction furnace at Ont. foundry, 12/31, p.28

Industrial Development:
See Area Development

Industrial Fasteners Institute:
Elects, B, 11/5, p.35

Industrial Furnaces:
Industry forecast '63, 12/3, p.31

Industrial Heating Equipment Assn.:
Annual meeting, '63 sales upturn, 12/3, p.31
Elects, 12/10, p.35

Injectors: See Foundries

Institute of Electrical & Electronics Engineers:
Formed by merger, B, 12/3, p.35

Inspection & Testing:
Article: Machines for new age of quality control test and inspection, 9/24, p.84
Article: How we'll measure tomorrow (new testing equipment), 12/31, p.20
Auto tape controlled inspection machines, 9/17, p.20
Billet testing automated at Keystone, 7/16, p.88
Billet testing, black light detects flaws, 12/17, p.80
Fluoroscope checks line pipe welds, 8/6, p.94 and 12/3, p.78
Gear tester-corrector, Italian machine, 11/26, p.20
Glossmeter measures surface luster (Tokyo), 12/3, p.20
Micromanipulators (minute object under microscope), 11/26, p.20
Molten lead transmits pressure in hot tests, 8/20, p.78
Nondestructive techniques listed, 12/31, p.23
Nondestructive testing of firebricks, 9/10, p.20
Nondestructive testing increases in steelmaking, 9/17, p.97
Paper radiographic prints used in weld inspection, 9/24, p.90
Neutron radiographs detect castings defects, TO, 10/22, p.20
Paper radiographic prints for weld inspection and repair, AMF Buffalo Div., 9/24, p.90
Quality information equipment at GE checks transistors, 9/24, p.85
Radiation lead shields, continuous test, 7/2, p.68
Radiation scanner inspects steel castings, 7/16, p.78
Radioactive gage checks thickness, 11/12, p.20
Radioactive tracers probe huge turbine shell casting, 11/12, p.35
Radioisotope cameras spot flaws in steel up to 2 in. thick, 10/22, p.170
Spectrometer sorts foreign atom in a billion, 7/9, p.12
Tension springs, tester, 9/10, p.20

Institute of Scrap Iron & Steel Inc.:
Co-op purchasing organized, 9/10, p.33
Rate decision (Cincinnati court) complaint, 7/23, p.179
Sues ICC in decision of freight rates in East, 7/30, p.10

Instrument Society of America:
Dr. Plore: 'Keep Pace,' 10/22, p.29
Elects, B, 10/29, p.32

Instrumentation:
Astin (NBS): Physical measurement: Pilot of progress, 7/23, p.112
GE brings out new instruments, controllers, 8/13, p.74
Lukens magnetic flowmetering cuts maintenance cost (waste water from rolling mill), 8/6, p.92
How we'll measure tomorrow (testing equipment industry), 12/31, p.20
Leeds & Northrop, iron-steelmaking equipment dev., 9/17, p.131
Motorola enters field of process controls (Teletrak), 9/10, p.95
Steel processing use: What's needed, what's coming, 9/17, p.97
Trend to centralized instrumentation, steel plants, 9/17, p.92
See also Inspection, Testing

Insulation:
Aluminum oxide for thermionics, 10/15, p.20
High temp tape insulates atom control, Princeton lab, 11/12, p.70
Magnesium oxide ceramic, electrical insulator, 7/30, p.10
Insulating resin extends motor environment, 9/24, p.95

Insurance:
Business insurance, flexible security, 11/5, p.92

International Acetylene Assn.:
Affiliates with Compressed Gas Assn., 11/12, p.35

International Copper Research Assn.:
Protective coating system, 12/10, p.28

Inventions: See Government

Inventories:
Aluminum, copper, copper mill products, 3rd quarter, 9/3, p.29
Aluminum, copper, copper mill products, 4th quarter, 12/3, p.31
Components, 3rd quarter, 8/6, p.25
Components, 4th quarter survey, 11/5, p.29
Steel mill products, 3rd quarter, 9/3, p.28
Steel mill products, 4th quarter, 12/3, p.29
Steel inventories: Who'll trigger the upturn?, 11/19, p.25
Steel inventories: PAs ponder what to do—hedge or not, 12/31, p.15

Inventory Building:
Recessions blamed on inventory building, 7/16, p.27

Inventory Control:
Better systems and practices needed: Sims Jr., engineering consultant, 10/8, p.31

Investment Casting:
See Casting, Castings

Iron Castings Producers:
Elects, B, 12/3, p.35

Ironmaking:
Shaker ladle purifies foundry, merchant iron (Dravo gets German rights), 10/8, p.63

Iron Ore:
Australian beneficiation, two separate stages, 7/9, p.70
Australian deposits, 7/16, p.67 and 68
Beneficiation processes, 7/9, p.70
Canada's major developments, 9/3, p.33
Carol Lake project, Labrador (joint owners), 9/3, p.33
Carol Lake, automatic train brings ore from mine to crusher, 9/3, p.31
India, conveyor line down mountain, 10/1, p.44
Kaiser storage and blending system levels ore variations, stacker layers ore from Eagle Mountain, 12/17, p.86
Italian plant processes pyrites, 7/9, p.70
Soda ash improves pellets in agglomerization, TO, 10/1, p.16
Wabash Lake (Labrador) owner-developers, 9/3, p.33 and foreign firms, 9/3, p.124
See also Pelletizing

Isotopes: See Atomic Energy

Italy:
2nd Sendzimir galvanizing line at Cornigliano plant, 7/9, p.66
Appliance market fast, 8/6, p.137
Foundries have joint research, 7/9, p.55
Italsider, production figures, 7/9, p.56
Milan Machine Tool Show, 11/26, p.31; 11/5, p.164
New multiproduct plant makes pyrites pay off, 7/9, p.70
Productivity gains (industries), 12/3, p.118
Strip finishing lines built by Herr Equipment in England, 10/22, p.168

J

Japan:
Anatomy of a giant: Nippon steel, 12/24, p.27 and editorial, p.11
Advantages of doing business in—and with Japan, 8/13, p.115
Auto part exports, 9/3, p.116
Auto industry no threat to U. S.—yet, 12/3, p.109
Automated oxygen generating plant, designed and built by Kobe Steel, two-man operation, 12/24, p.65
Cabinet members in U. S. promised fair trade treatment, 12/17, p.29
Communist trade, stepup, 7/9, p.55
Communist trade, objections, 11/12, p.113
Company earnings, 7/9, p.56
Continuous casting progress, Toto Steel, 9/17, p.90
Diamond making, pressure atmospheres, 11/26, p.20
Electrical labor leader (Takehana) seeks pay hikes, 40 hr. week, 10/22, p.155
Facts behind Japanese steel rumors, 9/24, p.25
Four biggest Nippon firms, sales volume, 9/17, p.191
Fuji Steel, ultradeep drawing strip, 8/27, p.56
Howick (STEEL editor) visits Japan Tool Fair, 10/15, p.163; 10/22, p.27
Howick: Economy, production, sales, 11/5, p.153
Ikeda (Premier) schedules talks with European leaders, 9/24, p.137
Japan Machine Tool Trade Assn. meet in Chicago: Goal—U. S. sales, 12/10, p.31
Japan's team studies U. S. wage, employment methods, 10/29, p.77
Joint ventures sought with U. S. and other foreign firms, 10/8, p.29
Kagaku installs vertical lime kilns, 8/13, p.76
Kawasaki Steel Export-Import credit to buy steel mill equipment for Chiba mill (U. S. suppliers), 11/5, p.154
Kashifuji Works eyes U. S. for machine tool sales, 12/31, p.63
Kokan: Canadian tariff hike overlooked, 8/13, p.115
Machine tool production by type (1955-'61), projected output for 90 builders, 7/30, p.49
Orders decline following Kaiser price cut, 11/12, p.26
Osaka Machine Tool Fair: Nippon toolbuilders set to tackle world market, 11/26, p.29
Researchers buy British machines, 9/24, p.106
Russians buy steel, 10/29, p.28
Sony Corp. goal: TV tape recorder in every home, 12/10, p.86
Southeast Asia common market sought, 7/16, p.68
Steel dumping charges bring on pipe export association, 11/12, p.16
Steel (wire rod) dumping charge challenged by Atty. Stitt, 11/19, p.27
Steel mill prices, 11/19, p.28
Steel output for '63, 10/1, p.75
Steel pipe sales promotion team visits Europe, Middle East, 9/17, p.31
Tokyo Shibaura makes ruby lasers, 11/12, p.20
Turbine contracts from U. S. Bureau of Reclamation, 12/3, p.18
USW teaches tactics, Tekko Roren attends convention, 9/24, p.28
Wire rod prices up, 12/31, p.39
Yamamoto Industries diversify, seeks U. S. licenses, 8/6, p.137
Yawata Iron & Steel licensed for R-N direct reduction, 10/29, p.28

Jet Engines:
Jet engine noise converted to power, 7/2, p.12
Jets to generate electricity, 8/20, p.29

Job Shops:
Job shop saves 50% with numerical control, Miehl Co., 10/8, p.64
Job shop scores with numerical control, Simonds Saw obviates $25,000 in jigs, fixtures, 10/8, p.64
Lafayette Grinding: Precision grinding of large, irregular shapes handled deftly in job shop, 11/19, p.91

Jobs:
Job pattern in service-producing industries, 8/6, p.19
Managers' reasons for job changes (more competition, not more money), 12/10, p.27
Technology wipes out jobs (Labor Dept. studies), 7/2, p.67
Wirtz (Labor) plan to fight job obsolescence, 11/19, p.94
See also Training

K

Korea:
U. S. firms join in steel mill plan, 12/17, p.33

L

L-D Steelmaking:
See Steelmaking (Oxygen)

Labor:
1963 outlook: Will Kennedy get tougher?, 12/10, p.25
Aerospace firms won't follow Douglas Aircraft settlement, 7/30, p.21
AFL-CIO-Meany pushes 35 hour week, 8/20, p.26
AFL-CIO-Meany drives for shorter week (NAM and Chamber of Commerce objections), 10/22, p.29
AFL-CIO readies organizing drive in Los Angeles area, 10/29, p.28; approved, 12/17, p.92
Agency shop (dues collected from nonunion workers) attacked, 10/1, p.84
Aluminum pact, 7/9, p.104
Aluminum strike against Alcoa and Reynolds, 8/6, p.28
AMC workers get profit sharing, 12/17, p.92
Arbitration: A trend toward self-regulation (X and Z Co.s), 8/27, p.45
Arbitration trend toward legal restraints (Alexander-Detroit attorney), 10/29, p.81
Bargaining trends show management taking offensive: Labor relation specialists speak at NMTA, 7/16, p.26
Bluecollar workers goals, 11/5, p.83
Collective bargaining, new goals (Cushman-AMC), 9/24, p.93
Collective bargaining-government intervention hit, 10/1, p.26
Collective bargaining resulted in noninflationary wage gains (Goldberg), 8/13, p.17
Collective bargaining, new goals (metalworking series), 11/19, p.79
Copper pacts, 7/16, p.132
Employer obligations (plant moves, seniority rights, contract expiration): 1. Supreme Ct. ruling on Zdanok vs. Glidden, 11/12, p.31 and (2) NLRB ruling on Globe, 11/26, p.18
Farm workers reversal, 1980, 12/10, p.18
IAM-Hayes: New goals for labor unions, 10/22, p.145
IUE-Allis Chalmers pact (yearly bonus), 8/27, p.29
IUE: Carey-Hartnett showdown coming at Cleveland convention, 9/17, p.28
IUE: Carey pushes through 'stop Hartnett' measure, 9/24, p.27
Job security, fringes figure in labor talks, 7/30, p.21
Job obsolescence, Wirtz offers plan for employee safeguard, 11/19, p.94
Labor agreements in 1st half up wages 3.2 per cent, 8/6, p.17
Nonferrous negotiations snag, 7/23, p.176
Nonferrous talks shaping up, 7/30, p.22
Nonferrous peace closer, 8/13, p.27
Rail strike forecast, work rule changes factor, 7/30, p.22
Short workweek no answer (Wolfbein), 9/24, p.140
Skilled labor shortage, 8/27, p.26
Smaller firms win nonpattern settlements, 7/30, p.22
UAW-Ford: Worldwide union target, 10/1, p.68
UAW-Reuther: How strong should a union be?, 10/1, p.13
USW convention, Miami, lacks punch, 9/24, p.27
USW contract with can firms (13 week vacation), 10/8, p.28
USW-HRC committee study, 11/19, p.26
USW-Kaiser labor pact, 7/2, p.26
USW-Kaiser progress sharing plan viewed by McDonald, 12/24, p.21; 12/31, p.9
USW-local attacks foreign steel buying, 7/16, p.27
USW officers' salaries, 8/27, p.28
Union leaders push low income not corporate, tax cut, 8/13, p.26
Union role in worker progress (NAM study), 10/1, p.78
Unions barred at Molded Fiber Glass, have monthly profit sharing, 9/17, p.194
Unions, new goals (IAM-Tayes), 10/22, p.145
Unions report net assets, 7/9, p.62
Whitecollar workers, unions winning elections, 11/5, p.17
Wirtz: What role in steel contract talks?, 11/19, p.27
Women in labor market, 9/24, p.19

Labor Costs:
Japanese team studies U. S. wage and employment methods, 10/29, p.77
Labor costs, how much fringes (chart), 9/3, p.18

Labor-Management:
Aaron: Cut down government role as policeman, 12/3, p.120
Block (Inland) and McDonald cite need for co-operation, 8/13, p.82
Commerce Dept.: Who's to blame for profit squeeze, labor or business, 12/10, p.92
Gomberg (Wharton School): Solving labor tangle, 8/13, p.118
Gomberg: Compromise is basic to U. S. labor relations, 11/12, p.116
Human Relations Committee (steel talks), 11/19, p.26
IAM-Hayes, new goal for labor-management (USI plan), 10/22, p.147
Kaiser 'share the progress plan' submitted, 12/24, p.21
Kaiser-labor panel nears accord, 8/13, p.27; hits snag (timing of price cuts), 12/3, p.28
Kennedy to call economists for ideas on tax reform, 9/17, p.28
Kennedy's Advisory Committee, tips on export expansion, 10/15, p.27
Kornbluh calls for bargainers in diplomatic corps, 7/9, p.46
Labor relations specialists cite cooperation at NMTA meeting, 7/16, p.26
Livernash (Harvard): New goals for collective bargaining, what union-management relations should be, 11/19, p.79

Labor Surplus Areas:
Defensework to areas as an anti-recession move, 8/6, p.26

Lake Shipping:
Erie bids for seaway trade, plant and dock facilities, 8/27, p.49

Laminating: See Plastics

Lasers:
Cover: Lasers aimed at production role, Hughes Aircraft, 10/29, p.35
Italian laser in infrared range, 11/26, p.20
Laser operated by electricity, 12/10, p.20
Laser used as a spectrograph, 9/3, p.20

Liquid laser gives green light, promise for ocean communication, 7/16, p.23
Liquid laser instead of solid or gas, 12/24, p.16
Ruby lasers made by Japanese firm, 11/12, p.20

Latin America:
LAFTA (association): Nine nations make big market, 10/1, p.76
Needed: More private funds for Latin American aid, 10/29, p.27
U. S. boosts investments, 7/9, p.55

Lead:
Molten lead transmits pressure in hot tests, 8/20, p.78
Navy takes bids on tons of pig lead, 9/17, p.128

Leaded Steel:
Free machining leaded steel (Mach-5) unveiled by U. S. Steel, 7/2, p.26
Free machining steels, 10/15, p.109
Supermachining, selenium-leaded steels, introduced, 8/13, p.33

Leasing:
City Tool leases machine tools from holding company (A new lesson in management), 7/9, p.64
Depreciation reform may benefit, 7/23, p.25

Licensing:
Dravo (German rights) for shaker ladles, 10/8, p.63
Heppenstall for stream degassing process, 8/6, p.71
Overseas licensing and engineering agreements benefits firms (G. E. Gregory), 10/1, p.78

Lime Kilns:
On-site (do-it-yourself) lime kilns available to steelmakers, 8/13, p.76

Lubricants, Lubrication:
Bearings lubrication progress, 9/17, p.20
Glass lube process (Ujine-Sejournet) in extruding, 8/20, p.65
Hydraulic fluid cuts fire hazard, 11/19, p.86
MS hydraulic fluids promise more system life, 10/29, p.48
Magnetic separators double coolant life (Timken), 12/17, p.100
Oil spray for cold drawn steel bars, 8/20, p.72
Ore-A-Tape lube in tape form, 10/15, p.20
Solid lube (molybdenum disulfide), 7/30, p.26
Trichlortrifluroethane mixes with lubricants and soils, TO, 10/1, p.16

M

Machine Tool Industry:
AMTDA meeting, industry outlook, 11/5, p.31
Capital spending: Machine tool buying's on upswing, 11/26, p.25
Depreciation rules revised, 10/29, p.25
Forming tools—oversea orders high, 9/3, p.26
Heald offers part kits as 'downtime insurance', 12/17, p.31
Japanese fair, exhibits viewed by STEEL editor, 10/22, p.27
Japanese toolbuilders eye U. S. market, 12/10, p.31
Kearny & Trecker unveils low cost financing for customers with Cash-Flo program, 12/10, p.26
Milan Fair, exhibits, 11/5, p.164
Marketing session at Purdue, 8/6, p.28
NMTBA: New orders (Aug.) for metal cutting tools, 10/1, p.22
NMTBA: New orders (Oct.) for equipment makers, 11/26, p.25
NMTBA redefines term 'machine tool', 7/23, p.10
Nylon applications, examples, 9/24, p.104
Overseas marketing: Will machine tools ever top 1961's peak?, 9/3, p.25
Surplus tool auction, Chicago, 10/15, p.106
Surplus tool sales, Norfolk, Va., 7/30, p.25
p.49
World production figures, 7/30,

Machine Tools & Attachments:
Contour lathe cuts 54 in. rolls (CF&I), 9/17, p.127
Getting maximum utility from machine using two or more processing lines, 7/23, p.133
Gun drill attachment to turret lathe, 11/5, p.87
Opel transfer line 'debugged' before shipment from Ingersoll, 8/13, p.71
Positioning control DynaPoint, Bendix, 12/10, p.64
P&W's Tape-O-Matic, sales pay off, 12/10, p.83
Rotary surface grinder for big pieces, 12/10, p.94
Spiramatic Jigmil, 11/19, p.83
Vertical lathe doubles as 'rotary planer', Giddings & Lewis, 7/16, p.75

Machinery & Allied Products Institute:
Outlines incentive value of depreciation guidelines, 10/29, p.26

Machines:
Quality control and inspection machinery: Emerging, machines for new age of quality, 9/24, p.85

Machining:
Carbide inserts help chuck grip, 10/29, p.41
Carbide readily machinable (air gage spindles), 10/8, p.68
Combined ultrasonic-electrolytic tech.s speed tungsten carbide machining, 8/20, p.86
Giddings & Lewis mill eliminates milling operations (rocket motor housings), 7/16, p.75

Magnesium Association:
Annual meeting: Lighter magnesium-lithium useful in space vehicle, 10/29, p.30
Moves headquarters to Detroit, 9/17, p.35

Magnets:
Columbium-tin metal compound for superconducting magnets, 8/6, p.20

Magnetic Powder Core Assn.:
New name of Metal Powder Core Assn., 10/29, p.32

Magnetism:
Fatigue correlated to magnetism of mild steel, 9/24, p.20
Powder parts made magnetically by Russian, 9/24, p.20

Maintenance:
Blast furnace shell moved to make foundation repairs, 10/1, p.27
Furnace relining, lightweight firebrick, 10/8, p.67
Magnetic flowmetering cuts maintenance cost at Lukens, 8/6, p.92
Mill maintenance costs cut with cast nylon parts, 8/20, p.74
Motor generator set check means big savings, 7/9, p.63

Malleable Founders Society:
Names adm. director, B, 10/29, p.32

Management:
A new lesson in managing people (motivation generated by independence), 7/9, p.64
Average executives replaced, 8/6, p.90
Business leadership regained if managers junk out-of-date axioms, 9/3, p.69
Executive demand high, 9/24, p.18
Executive salary, sales, profits, a change since 1959 (Charts), 10/15, p.28
Goals: Aim at something to do your best, 10/1, p.78
Incentive plans for middle, lower managers pay off, 10/15, p.98
Manager job hunters want bigger challenges not more money, 12/10, p.27
Managers (profile): Situational thinkers, 12/17, p.160
Motivation of supervisors, 11/5, p.156
Planner plays key role in changing economy, 12/3, p.120
Technology lag charged by Rickover, 11/5, p.25

Management Systems:
CPM and PERT — communications shorthand for management, 11/19, p.76
CPM, how automakers use it, 12/24, p.55
RAMPS—new technique boasts better resource utilization, 8/6, p.29

Manager Surveys: See Metalworking

Manpower Act: See Government

Manufacturing:
2nd quarter financial report, 9/17, p.18
Exports outpaced by U. S. manufacturing abroad (commodities listed), 10/8, p.18
NICB survey, last half, 10/1, p.13

Market Section:
New look (green pages), 8/6, p.111

Market Research:
Market research helps Bendix introduce positioning control, 12/10, p.64

Marketing:
AISI trends, Chicago exhibit, 12/17, p.26
AMA meeting speakers, 7/2, p.42
Chain Belt (Woodland): Urges marketing vigor to rescue profits, 8/13, p.118
GE (McKittrick): Blames managers for 'ills' of business, at AMA conference, 7/2, p.25
Koppers (Tunstead): Marketing seminars, Venezuela, 10/8, p.106
Norge Div. (Sayre): New goals for marketing men, 7/30, p.57
Racine Hydraulics: Marketing switchback expands sales potential, 11/5, p.90
Marketing seminars sponsored by AID, 10/8, p.106
Randle (Booz, Allen & Hamilton): U. S. traders must adapt to changing world patterns (address at World Marketing Conference), 8/6, p.31
Wyman-Gordon marketing organization, 12/17, p.33

Markets: See Business (Markets)

Masers:
Bell lab displays gaseous masers, 8/20, p.88

Material Handling Industry:
Conveyor industry minimum wage (Walsh-Healey) reviewed, 7/16, p.26
Handling equipment dictates plant layout: wireless remote controls (AISI papers), 9/17, p.113

Material Handling Equipment: Conveyors:
Continuous ingot casting conveyor, 10/29, p.40
Conveyor weighers control iron pelletizing process, 10/29, p.46
Tilter at coil mill handles hot bands, 10/22, p.161

Cranes, Hoists:
Rotating hooks on overhead cranes, 10/29, p.41

Trucks, Gas & Electric
Electronically controlled, electric lift trucks, 10/8, p.33

Material Handling Institute:
Elects Price president, 10/22, p.31

Materials Awareness:
Nonferrous (copper and aluminum) firms aid users with materials awareness programs, 12/17, p.27

Materials Report:
AISI Chicago exhibit: Tempo of the materials race quickens, 12/17, p.25
Automated seamless mill makes tubing for bearings, 9/10, p.84
Code change broadens use of pressure vessel steel, 10/15, p.88
Competition gives users wider choice of materials, 7/2, p.69
Corrosion protection starts with design, 11/12, p.70
Electrolytic hot dip tinning line, Australia, 8/13, p.76
Conveyor weighers control iron pelletizing process, 10/29, p.46
Fluid cushion principle revamps strip transport, 8/6, p.72
Giant blending plant (Kaiser) levels ore variations, 12/17, p.86
Good engineering cures plant water problems, 12/3, p.76
How fabricators exploit material use potential, 11/5, p.94
Module concept pays off on bar annealing line, 10/1, p.46
New multiproduct plant makes pyrites pay off (Italy), 7/9, p.70
New tandem mill rolls light gage tin plate, 12/24, p.34
Pilot size electro line feasible for narrow strip, 8/27, p.54
Pipe corrosion solved by epoxy lining coat, 7/16, p.86
Printed circuit conductors (Bell Telephone) formed from copper powder, 12/10, p.80
Spinning, forming easy with new stainless (18-9 LW), 12/31, p.27
Titanium heat exchangers made in plate form, 7/23, p.136

Measurement:
Physical measurement: Pilot of progress (Dr. Astin), 7/23, p.112

Meetings:
AMA tips for fewer, better meetings, 11/19, p.104

Melting:
Foundries get space age furnace (Plasmarc), 10/15, p.77

Mental Health: See Psychological Tests

Mergers:
Rep. Patman: Mergers 'cancerous' to small business, 12/10, p.91

Metallurgy:
A look at magnetic distribution in silicon-iron alloy (cover), 12/31
A special study: Trends in metals (higher strengths boost steels as 'light' metal), 12/3, p.55
Carbon content of steel in oxygen converter during blow measured in France, 9/10, p.98
Chemical dispersion—process gives metals high temperature strength, 8/6, p.76
Crystals studied by Navy: Semiconductor material in thermoelectric converters, 9/10, p.81
Dispersion hardened metals resist heat, 8/6, p.76
Du Pont nickel-thorium oxide process gives metals high temp. strength, 8/6, p.76
Eddy currents detect metals corrosion, TO, 8/27, p.20
Fatigue correlated to magnetism, mild steel study, 9/24, p.20
Lithium alloy purifies carbon (lowers oxygen-hydrogen content), 9/10, p.96
Miniaturization speeds metallurgical testing, 9/10, p.82
Precious metals role in space industry, 11/26, p.33
Single crystal production gives ultrapure metals, 8/20, p.76

Metal Deposition:
Electrodeposition of binary alloys on chromium base metal, rhenium in coating, 7/16, p.23

Metal, Finishing:
Preparation of cast iron parts for brazing, 7/9, p.69
Superlume, new plating without buffing, 7/9, p.67

Metal Finishing Suppliers Assn.:
Elects Kellner president, 8/6, p.33

Metal Powder Industries Federation:
Appoints Johnson asst. to exec. sec'y, 9/17, p.35

Metal Removal:
New grinding wheels do more work, 7/2, p.62

Metal Selector:
1962 edition, 10/22, p.102

Metal Show:
1962 metal show features prognosis and practice, 10/22, p.101
Application ideas for metals and alloys, awards competition, 11/5, p.94

Metalworking:
1962: Has '62 low point been passed? 7/9, p.21
1962: 9 month earnings—uptrend hides true profit picture, 11/12, p.25
1962: Metalworking's best year, 12/31, p.59
1962: Equipment spending—depreciation could start flood of new orders, 7/2, p.21

1963: What metalworking managers expect, 11/26, p.71
1972 forecast: Aerospace firms list equipment needs, 12/10, p.68
2nd quarter earnings (editorial), the profit pinch, 8/13, p.15
3rd quarter earnings, 1/12, p.25
Depreciation reform, how used (chart), 7/16, p.11
Price pressure holds (executive survey), 9/17, p.25

Metalworking Goals:
13. New goals for engineering (McCune), 7/2, p.53
14. New goals for cost cutters (Davis), 7/16, p.71
15. New goals for marketing men (Sayre), 7/30, p.56
16. New goals for purchasing (Andrews), 8/13, p.67
17. New goals for small company diversification (Dr. Pall), 8/27, p.41
18. New goals for product planning (Scott), 9/10, p.73
19. New goals for collective bargaining (Cushman), 9/24, p.91
20. New goals for customer orientation (Maechtlen), 10/8, p.59
21. New goals for labor unions, (Hayes), 10/22, p.145
22. New goals for bluecollar workers (Wistert), 11/5, p.83
23. New goals for collective bargaining (Livernash), 11/19, p.79
24. New goals for managers' mental health (Dr. Halstead), 12/3, p.71

Metalworking Speaks Out (Manager Survey):
How would you divide benefits of gains in productivity? 7/23, p.117
Should we trade with Communists? 8/20, p.69
Should we have a tax cut now? 9/24, p.102
Who should pay for equipment engineering? 11/5, p.88

Mexico:
German auto plant moved to Mexico, 9/3, p.18
Industry compelled to share profits with workers, 12/3, p.117
Steelmaker signs fantastic credit terms in Argentina, 12/3, p.117

Miniaturization:
Miniaturization speeds metallurgical testing, 9/10, p.82
Subminiature heading turns a profit (screws), 9/10, p.78

Missiles, Rockets:
See Space Technology

Missouri:
Quarry 'holes' converted to warehousing space, underground space, 11/12, p.68

Molybdenum:
GE rolls molybdenum sheets in three grades, 10/29, p.48

Monorails: See Transportation

Motors, Generators:
Insulating resin extends motor environment, 9/24, p.95
Maintenance for motor generator sets means savings, 7/9, p.63
Miniature low speed, direct drive motor, 12/31, p.18
Spring generator design, 10/1, p.39
See also Thermoelectrics

N

National Aeronautics & Space Adm.:
Boston office to deal with universities and Northeast business firms, 7/16, p.22
Buyer of space simulators, 7/9, p.59
Magnelok tool for metal fabricating dev. at Huntsville, Ala., center, 10/1, p.14
Proposes relaxation of exclusive patent rights, 11/12, p.28
Rocket engine (goal), 20 to 30 lb thrust, 11/26, p.20
Saturn/Apollo C-5 for lunar flight, 8/27, p.20
Seamans Jr.: Small firms contracts, 7/30, p.10
Sees engineer scarcity by '70, 8/6, p.87
Space chambers under construction, Md., 8/13, p.20
Tech. knowhow shared with nondefense firms, 8/27, p.28

National Association of Aluminum Distributors:
Elects, B, 12/3, p.35
Meeting: Prices, profits plague distributors, 11/12, p.31

National Association of Manufacturers:
Campaign against monopoly power of labor unions, 10/22, p.29
Economic implications of union power, booklet, 10/1, p.78

National Association of Metal Finishers:
Awards of merit, 7/9, p.28

National Association of Purchasing Agents:
Economy stalled on dead center, say PAs, 8/6, p.26
Members compare anticipated '62 expenditures with '61 (effect of depreciation policy change), 9/10, p.17
Steel Committee report, 8/13, p.26
What to do about steel inventories —hedge or not? 12/31, p.15

National Bureau of Standards:
Astin (cover); Physical measurement, pilot of progress, 7/23, p.112

National Catholic Welfare Conference:
Rev. Cronin: Look at profits-wages, 9/24, p.140

National Electric Manufacturers Assn.:
Appliance sales top, 8/27, p.17
Beset by problems, export-imports, 12/10, p.88
Elects president, B, 10/29, p.32

National Fluid Power Assn.:
Elects executive v.p. and secretary, 8/13, p.35

National Industrial Conference Bd.:
1962, last half survey of manufacturers, 10/1, p.13
Committees provide more financial advice, 9/24, p.27
Foreign investment by U. S. firms in 1962, 11/12, p.18
Gainsbrugh: Lack of investment incentive bad for economy, 11/26, p.17
Ince: Nonferrous metals outlook, 9/24, p.29
Survey on competition, 11/19, p.105
Surveys Canadian economy, 11/5, p.153

NLRB: See Government

National Machine Tool Builders' Assn.:
Annual meeting, election, equipment buying trend forecast, 11/26, p.25
Redefines term 'machine tool', 7/23, p.10
Relaxes ruling on show participation, (five year limitation), 1/26, p.26
Sponsor marketing sessions at Purdue, 8/6, p.28

National Metal Trades Association:
Management takes offensive in labor negotiations: Labor relations specialists speak, 7/16, p.26
Work measurement spots labor wastes: Chapin addresses roundtable, 9/24, p.28

National Science Foundation:
Percent of engineers-scientist on R&D work, 12/31, p.25
Dr. Seely: Science, engineering rivalry, 9/10, p.170

National Screw Machine Products Assn.:
Elects, B, 12/3, p.35

National Tool, Die & Precision Machining Assn.:
Delegates tour Europe, 10/22, p.19
Elects, 10/29, p.32
Meeting report, profit squeeze, 11/12, p.26

Naval Radiological Defense Laboratory:
Heat determined by light pulse tech., 7/9, p.12

Navy:
Bids on tons of pig lead, 9/17, p.129
Gun breech fabrication, ceramic parts, 11/19, p.98
May buy foreign steel for Puget Sound shipyard, 7/2, p.10
Purchase of foreign steel, McNamara orders review of case, 7/16, p.27

New Zealand:
Population growth, 7/9, p.56

Nickel:
Nickel-bar form (dispersion hardened), high temperature strength, 8/6, p.76

Nitrogen:
Nitrogen carries sodium vapor in aluminum bath, 10/8, p.70

Nondestructive Testing:
Nondestructive test for firebricks, 9/10, p.20
Nondestructive techniques listed, 12/31, p.23
Nondestructive testing increases steelmaking, 9/17, p.97

Nonferrous:
Aluminum firms, 1st half earnings, 7/30, p.98
Aluminum ingot price cut drops to world level, 12/10, p.27
Aluminum labor pact, what it will mean, 7/9, p.104
Aluminum tariff cuts: France's De Vilry protest, 12/17, p.160
Aluminium — Common Market seeks 10% tariff, 12/31, p.16
Associations launch materials awareness programs (CABRA), Big Three (aluminum), 12/17, p.27
Copper imports up, 1st half, 8/20, p.28
Nonferrous labor negotiations hit snag, 7/23, p.176
Price outlook for nonferrous metals, 9/17, p.26
Silver—Mexican action brings stability, 8/27, p.27
Silver price down—how long? 10/8, p.17
Silver price up to $1.13, 9/10, p.27
Silver price rocketing, more demand than supply, 9/24, p.31
Silver price could hit the monetary ceiling, 11/12, p.28
Tin, what happens now? (shortages-runaway prices), 7/23, p.155
Tin disposal (see Stockpiles)

Non-Ferrous Founders' Society:
Elects, B, 11/5, p.35

Nuclear Reactors: See Atomic Energy

Northwestern University:
Prof. Eisner knocks tax credit for investment, 10/15, p.166

Numerical Controls:
Bendix's DynaPoint 32 numerical positioning control: Market research helped introduce, 12/10, p.64
Brown & Sharpe N/C program (SNAP) cuts preparation time, 10/29, p.30
Cincinnati Milling: New tape system (Acramatic) shows sophistication plus, 11/26, p.95
European firms adopt numerical controls, 12/10, p.33
Inter'l Harvester taped engine block line, 10/29, p.30
Simonds-Saw: Job shop scores with numerical control (obviates jigs and fixtures), 10/8, p.64
Miehle (job shop) saves up to 50% with Healdrills and Cincinnati Acramatic controls, 10/8, p.65
Small shop benefits, 8/20, p.73

Nylon:
Applications for machine tools, 9/24, p.103
Cast nylon (MonoCast) parts cuts mill maintenance costs, 8/20, p.74
Nylon strapping (Dymax) new at Signode, 12/31, p.17

O

Ocean Floor:
Ocean floor nuclear reactor aids studies, mining operations, 11/26, p.18

Office of Manpower, Automation & Training:
Wolfbein: Shorter workweek no answer, 9/24, p.140

Ohio Research & Development Bd.:
James Nance heads new Ohio group, 9/10, p.30

Orders, Deliveries:
Warehouse robot order filling, computers, 10/1, p.40

Overseas Investments: See Foreign

Oxygen Furnaces:
1964 projection for firms using oxygen process, 9/10, p.101
Duquesne Wks., U. S. Steel plans furnaces, 9/3, p.31 and 9/10, p.101
Empire-Reeves furnaces oxygen equipped, 10/15, p.33
International Harvester to replace openhearths with oxygen units, Wisconsin Wks., 10/8, p.72
Pennsylvania Eng. contract (L-Ds), 12/3, p.35
Oxygen units forecast for stainless-alloy grades commercially produced, 10/8, p.72
World capacity, L-D oxygen furnaces, 7/2, p.85

Oxygen Processes: See Steelmaking

P

Packaging, Containers:
Aluminum containers transport via boat plastic resins, 7/23, p.122
Aluminum tubes used to ship nuclear fuel pins, 8/20, p.78
Containers, competition in materials, 7/16, p.24 and 10/22, p.159
European packaging, 10/29, p.77
Inflatable rubber bags cut freight car bracing costs, 9/10, p.97
Machine tool packaging box, 8/20, p.73
Sen. Hart: Packaging and labeling practices not adequate for today's market, 7/16, p.23
Snap-lock extrusion-units for assembling shipping containers, 3/27, p.175
Wrap protects oily steel, laminated with oil resistant adhesive, 7/2, p.57

Paints: See Finishes

Papermaking:
Fourdrinier machines, 6/12, p.19 and 6/19, p.88
Paper from refractory materials like glass, ceramic, etc., TO, 10/1, p.16

Patents:
Common market patent system closer, 7/16, p.68
Patent rights to industry under NASA proposed, 11/12, p.28

Pelletizing:
Alloy grate bars installed, 99 in. wide pelletizing line, 9/10, p.86
Disc pelletizing gains scope via salvaging, processing, 2/13, p.114
Convevor weighers control iron pelletizing process, 10/29, p.46
Empire Iron Mining builds Mich. plant (magnetite ore processed into acid or self-fluxing pellets), 9/10, p.86
Self-fluxing iron ore pellets tested at Jones & Laughlin, 7/2, p.26

Pennsylvania State University:
Niebel: Job measurement, 12/31, p.64

Pensions:
Prof. Haber: Weakness of private pensions, 8/27, p.92

PERT: See Management Systems

Photography:
Camera lens made with bundle of optical fibers, 7/2, p.12
Paper radiographic prints used for weld inspection and repair, 9/24, p.90

Pickling:
McLouth orders tower pickling line (Ruther process), 12/3, p.33
Pickling tower saves space (hydrochloric acid used), 9/17, p.110
Vertical pickling, continuous steel strip, Austrian process, 9/17, p.20; Dravo gets distribution rights, 9/24, p.19
Vertical (tower) pickling, 10/1, p.48

Pipelines:
Australian oil pipeline surveyed, 11/26, p.148
Coal pipeline proposed for S. Calif., 11/26, p.18
Delrin pipe for oil field use, 7/2, p.69
Oil pipeline, Wyoming-Colorado, projected by Skelly and Sinclair, 11/26, p.124
Plastic pipe for underground systems, 10/15, p.102
Plastic pipe for underwater line pipe, handling gases and liquids, 8/6, p.33

Pipe, Tubing, Fittings:
Corrosion-proof internal coat for steel pipe, 7/16, p.86
Electric welded tubing moves up to bigger jobs (new uses-developments), 10/1, p.35
Electroweld tubing scores in powerplant application, 10/15, p.84
Heat exchanger tubing—fins add strength, 8/20, p.87
Seamless tube mill (tubing for bearings), 9/10, p.84
Swirl tube generates heat or cold, 12/10, p.20
Tubes heat treated to prevent unevenness with reverse roller action, 8/6, p.74
Welded stainless pipe, Allegheny enters field, 11/12, p.29

Plant Clean Room:
Laminar flow-air handling for space age cleanroom, 12/3, p.33

Plant Expansion & Developments:
Alcoa mill to roll light gage sheets, Ind., 10/22, p.33
Allegheny Ludlum enters welded stainless pipe field, 11/12, p.29
Armco installs terne coat line, 8/27, p.35
B&L machine, continuous steel bars from coiled stock, 12/17, p.29
Pittsburgh Steel modernization, sheet annealing units, 10/8, p.33
Republic expansions, 8/27, p.27

Plant Moves:
Supreme Court and NLRB rulings (firms) on seniority rights, 11/12, p.31; 11/26, p.18; 12/24, p.15
Reliance Electric move to Ind.: Few hourly workers follow firm, 11/26, p.28

Plastics:
Acetal resins, 7/2, p.69
Applications for plastic extrusions, 9/17, p.122
Applications, developments, bright future, 10/22, p.31
Automakers use plastic clips, 7/30, p.34
Delrin pipe for oil field use, 7/2, p.69
Doryl laminate: Insulating resin extends motor environment, 9/24, p.95
Epoxy lining (In-Ter-Line coat) for steel pipe, corrosion proof, 7/16, p.86
Filament wound, reinforced plastics used by metalworkers (solid propellent motor case, boat hulls, etc.), 7/9, p.25
Inorganic plastics, new materials, 7/30, p.12
Packaging market uses, 10/22, p.31
Plastic coated pipe for underground, 10/15, p.102
Plastic line pipe (underwater), 8/6, p.33
Plastic replacement tool reduces downtime, 8/13, p.74
Plastic torsion bars, Ford, 9/24, p.20
Polyester resins flame sprayed on metals, 11/5, p.20
Polyethylene (powdered) spray coat, metal protection, 9/10, p.33
Polymers improved with metal elements, 12/3, p.20
Polyimide resins (Du Pont) new, high heat resistance, 12/10, p.83
Polystyrene material (thermoplastic)—Styron 492, 9/17, p.98
Polyvinyl fluoride film bonded to galvanized steel in coils, 8/27, p.31
Powdered plastic coats strip, 7/23, p.12
Tools with glass fiber plastic handles, 12/3, p.20
Urethane rings for hydrostatic tester of steel pipe, 9/17, p.122
Vinyl film on zinc, 8/27, p.31
Vinyl sprayed coatings on interiors of GM cars, 10/29, p.70

Plates:
6 in. plates for segments of girders, Round Butte Dam, 10/15, p.33
King sized plate spinning machine produces wider range of tank heads, 8/13, p.78

Plating: See Electroplating, Plating

Polishing: See Grinding, Polishing

Plowshares: See Farm Equipment

Politics:
Reid (Ford): Business must grapple in political arena, 7/23, p.100

Positioning: See Numerical Controls

Powder Metallurgy:
Bell Telephone: Printed circuit conductors formed from copper powder, 12/10, p.80
Ductile beryllium to be made from powder, 10/15, p.103
NRC produces ultrafine powders, 12/24, p.16
Powder metallurgy solves a cost problem (piston pumps), 7/23, p.10
Pyrophoric (ultrafine particles) produced, 12/10, p.19

Power Plants:
See Atomic Energy
See Electric Power

Prefabs: See Housing

Presses:
Forging press turns out 1340 lb aluminum aircraft bulkhead, 9/10, p.86
Steel castings form crosshead of huge graphite press, pic, 7/30, p.28
Steel plate press (Kaiser), 8/27, p.65

Pressure Vessels:
Alloy steel reactor pressure vessel (cover) fabricated at A. O. Smith, 12/3, p.55
Code change broadens use of pressure vessel steel, 10/15, p.88
Molten lead transmits pressure in hot tests, 8/20, p.78
Titanium tank (for liquid hydrogen containers) passes pressure tests for AF, 8/20, p.78

Prices:
Aluminum magnet strip, 7/30, p.98
H. R. carbon steel prices cut by distributor, 8/13, p.92
Kaiser cut; Alcoa reductions, 10/8, p.27
Kaiser Steel reverberations continue; other firms watched, 10/15, p.25
Kaiser ingots, down to world level, 12/10, p.27
National Metal Abrasives: Price overhaul means bring costs in line, 11/26, p.88
Pig iron cut, 11/12, p.89
Pressure on prices holds (metalworking executives survey), 9/17, p.25
Silver price basis changed, 7/30, p.98
Steel scrap price upturn, 7/16, p.111
U. S. Steel revises line pipe discounts, 7/23, p.157
U. S. Steel cuts prices on sheets, 12/10, p.27 and (chart) p.99

Princeton University:
Plasma Physics lab: High temp. tape insulates atom control, 11/12, p.70
Research center explores solar power source, 10/22, p.37

Printed Circuits: See Electric

Product Planning:
Ford (Scott): New goals for product planning, 9/10, p.73

Procurement: See Army

Production:
Silver (world), 9/24, p.31
Steel-world, 1st half, 9/17, p.191

Production Tips:
Lubricants, welding assembly, numerical control, packaging, 8/20, p.72

Productivity:
How would you divide benefits of gains in productivity? Metalworking executives consensus, 7/23, p.117
Rev. Cronin looks at wages-profits, 9/24, p.140

Profits:
The day profits disappeared (special issue), 9/3, p.46
Commerce Dept.: Who's to blame for profit squeeze (labor or business), 12/10, p.92
Congressional Economic hearings: How good are profits and the economy?, 8/13, p.25
Corporate profits, percentage change, 3rd quarter, 11/19, p.17
Economist (Smith-U. S. Steel) cites need to clarify profit concept, 10/29, p.81
Editorials:
The profit pinch, 8/13, p.15
Let's tell the people, 9/24, p.15
Needed—profit planning, 10/1, p.11
Profit before taxes?, 10/29, p.15
Profit pinch—operation bootstrap, 11/12, p.15
Employee motivation (attitude surveys) pay off, 7/23, p.123
German Institute: Profit story (leaflets), 9/24, p.18
Metalworking 3rd quarter: Uptrend hides true profit picture, 11/12, p.25
NTDPMA study profit squeeze, 11/12, p.26
Service Centers fight profit pinch, 7/9, p.88

Progress Sharing:
Kaiser's progress sharing pact, a trend in the making?, 12/24, p.21
Kaiser's plan, developments, 8/13, p.27 and 12/3, p.28
Possible with union-management co-operation, 9/24, p.94

Psychology:
Hiring tests can show emotional flaw in boss, 9/24, p.140
New goals for managers' mental health (Halstead tests), 12/3, p.71
People and machines (Prof. Fitts), 9/10, p.170

Public Relations:
Trade associations, new role aids business community, 10/15, p.80

Puerto Rico:
Expands steel mill (INSID), 11/12, p.29

Pumps:
Powder metallurgy cuts pump costs, 7/23, p.10 and p.139

Punches:
Gang punch hydraulic unit handles stock to 30 ft., 11/26, p.83
Portable punches cuts hole-in-metal costs, 8/20, p.80

Purchasing:
New goals for purchasing, 8/13, p.67
See also NAPA

Purdue University:
Amrine: Industrial engineers, changing profile, 11/12, p.27
Parlee: Homogenization betters forging steel ductility, 9/17, p.129
Machine tool marketing session, 8/6, p.28

Pyrite:
New multiproduct plant in Italy makes pyrites pay off, 7/9, p.70

Q

Quality Control:
Emerging—machines for new age of quality (GE) cover story, 9/24, p.85
How Ford approaches quality control, 11/12, p.57

R

Radiation:
Continuous testing of lead radiation shields, 7/2, p.68
England center disposes of contaminated waste, 12/3, p.118
High level gamma radiation lab, 7/30, p.27
Radiation scanner tests steel castings, 7/16, p.78

Radiography:
See Inspection, Testing

Radioisotopes:
Firms cite savings from use of, 9/3, p.20
Industry report, 11/19, p.19

Railroads:
Automatic train hauls iron ore from mine in Labrador, 9/3, p.31
Blowing method for hollow axles, 10/15, p.111
Capital expenditures-improvements forecast, 12/31, p.39
Chicago & North Western wins right to end featherbedding, 10/15, p.18
Electric locomotives equipped with silicon rectifiers, 8/6, p.20
Plastic train, German pilot design, 12/24, p.65
Sullivan (N. Y. Central): Railroads could be growth industry if . . . 11/12, p.18
Strike possible over work rule changes, 7/30, p.22

RAMPS: See Management Systems

Reactors: See Atomic Energy

Recruiting:
Your engineers are talking to recruiters (centers), 8/13, p.29

Refineries: See Smelters

Refractories:
Foamed refractory in honeycomb cells for high temps., 8/6, p.20
Lightweight firebrick, furnace relining, 10/8, p.67
Lighter 'bubble' furnace bricks dev., 12/10, p.20

Refractory Metals:
Fifth generation refractory metals, 10/15, p.20
Fluidizing coats, 10/29, p.20
Refractory coatings protect refractory metals, 8/27, p.50

Reliability:
Electronic equipment-systems studied under Army contract at Ford-Aeronutronic, 11/26, p.140

Research & Development:
An R&D program, does it fit your corporate objectives?, 12/17, p.28
Are automakers doing their R&D share?, 12/31, p.25
Battelle economists see more spending, 12/3, p.18
Co-op research: Boon to small firms, 7/30, p.50
Government wants 300 inventions (for armed forces and other agencies), 12/17, p.31
Heat transfer co-op study (12 firms form company), 9/10, p.32
Machine tool industry use, 11/26, p.26
Miniaturization in research, 9/10, p.90
Ohio group organizes (Nance chairman), 9/10, p.31
Physical measurement: Pilot of progress, 7/23, p.112
Scientific research-discoveries slow to be applied, 10/8, p.106

Research Centers:
Armour Research (Reed-cover story): Co-op research boon to small firms, 7/30, p.51
Federal research data at 12 area centers, (universities and libraries), 7/9, p.66
Radiation lab, Albany, Oreg., tests high level gamma radiation, 7/30, p.27
Youngstown Sheet & Tube builds, Boardman, O., 7/9, p.27

Resins: see Plastics

Resources Allocation (RAMPS):
See Management Systems

Rivets: See Fasteners

Robots: See Warehouses

Rolling Mills:
B-L-H: Prestressed cold mill rolls heavier gage strip, 10/22, p.150
Holland: Demag slab charger (table to furnace swing), 12/17, p.102
J&L's new tandem mill rolls light gage tin plate, 12/24, p.34
Thin tin plate mills, 7/16, p.24 and 7/30, p.62
West German mills to share rolling facilities, 7/16, p.67

Rubber:
Adiprene urethane rubber bonded to metal, 7/2, p.70
Cushionaire inflatable rubber bags cut freight car bracing costs, 9/10, p.97
Tires reinforced with steel, 7/9, p.24

Russia:
Buys Japanese automated oxygen plant, 12/24, p.65
Casting finish improved (oxygen exclusion), TO, 8/27, p.20
Challenge U. S. power production, 12/3, p.19
Continuous casting progress, 9/17, p.89
Electron beam gun, 8/27, p.20
Industrial production, 1962-1st nine mo.s, 11/26, p.148
Krushchev seeks development of steel substitutes, 12/17, p.158
Japanese steel sought, 10/29, p.28
Metal clothes for women, 7/30, p.12
Powder parts made magnetically, 9/24, p.20
Rectangular ingots cast sounder ingots, 9/17, p.20
Should we trade with communists, STEEL surveys readers, 8/20, p.69
Steel mill products dumped on Belgian market (below-market-price), 7/16, p.67
Steel production by 1982, 12/31, p.62
Welding advances reported by Dr. Oehler (AW), 12/17, p.160
Welding plates without flux or gas shielding, 10/15, p.20

Rutgers University:
DeGrazia: Book 'Of Time, Work, and Leisure', 7/23, p.100

S

St. Lawrence Seaway:
Foreign competitors make use of seaway, 10/8, p.18
Monthly cargo tonnage up, 8/6, p.18

Safety:
Designed safety counts in steel castings, 11/5, p.100

Salaries:
Executive salary trends reflect business cycle (chart), 10/15, p.28
Steelworkers union, executive salaries, 8/27, p.28

Sales: See Marketing

Salesmen:
District man (sales representative)—make him effective (Vickers cost control records; calls per day, dollar volume), 12/17, p.82
Norge Div. leads list of top ten salesmen in America, 7/30, p.57
Purdue Univ., machine tool salesmen sessions, 8/6, p.28

Scales, Weighing:
Alloy addition in molten steel by ladle feeders, weighing system, 7/9, p.73
Conveyor weighers control iron pelletizing process, 10/29, p.46
Timken portable scales, weigh tubing shipments, 12/17, p.35

Scrap:
Article: Scrap fights to strengthen its role in steel economy; atomic age scrap problem, 11/12, p.67
Co-op purchasing plant tried by industry, 9/10, p.33
Steel scrap prospects brightened by price upturn, 7/16, p.111

Sealants:
Assembly tech. uses liquid sealant (anaerobic polymer), 8/20, p.72

Service Centers:
See Warehousing, Distribution

Sheet & Strip:
Aluminum sheet mill rolls to 56 in. wide, 8/13, p.33
Aluminized coat on steel strip, 10/8, p.70
Armco's new sheet and strip alloy (19-9LW) makes spinning, forming easy, 12/31, p.27
Bethlehem enters prefinished sheet market, 8/20, p.33
Canadian plants add wide sheet facilities, 10/1, p.27
Electro line for narrow strip (BISRA), 8/27, p.54
Fluid cushion strip processing line (Hover Pulley), 8/6, p.72
Plate readied for huge 'cold box', 8/20, p.35
Prestressed cold mill rolls heavier gage strip, 10/22, p.150
Sheet steel fabricators switch to precoated stock, 11/26, p.86
Thin sheets made by Czechs, 11/12, p.20
U. S. Steel mill to provide better sheet flatness, finish, 8/20, p.76

Shipments:
Stainless steel, 1st half, 10/1, p.14
Steel products by service centers, 10/29, p.53
Titanium heads for record, 10/29, p.53

Shipping:
Container vans, 10/29, p.30
Nuclear fuel pins in aluminum tubes, 8/20, p.78
Plastic resins via boat in aluminum containers, 7/23, p.122
See Packaging, Containers

Ships, Shipbuilding:
An American rarity: A busy shipyard, 10/15, p.166
Giant barge-tug proposed for Lakes ore shipping, 11/5, p.28
Sweden assembly line shipbuilding-goal, 11/19, p.138

Shock Absorbers:
Giant hydraulic shock absorber (pic), 12/3, p.75

Shotblasting:
See Cleaning, Blasting

Silicone: See Finishes, Coatings

Silver: See Nonferrous

Skilled Labor:
Goshen (BAT) dir.: Is there a skilled labor shortage?, 8/27, p.25

Slitting Line:
Automatic handling on slitting line 8/13, p.66

Small Firms:
Co-op research boon to small firms, 7/30, p.51
New goals for small company diversification, 8/27, p.41
Prof. Bunzel (Stanford) disputes small firms' importance in economy, 11/26, p.150
Patman (Rep.) labels mergers "cancerous" to small business, 12/10, p.91

Small Business Adm.:
Guidebook for small business, research-development opportunities, 9/17, p.126

Smelters, Refineries:
Comalco ships bauxite to Bell Bay, Australia, 9/10, p.35
Jet smelting process (pig iron from fine ore), 10/8, p.72
Smelting separates columbium, tantalum, 10.29, p.20

Smoke, Smog:
Ford antismog device, California, 7/2, p.36

Society of Automotive Engineers:
Research and development topic for upcoming annual meeting, 12/31, p.25

Society for Nondestructive Testing:
Elects president, B, 10/29, p.32

Sodium Vapor: See Steelmaking

Solar Energy:
Solar telescope, Kitt Peak Observatory has heliostat mirror mount, 10/15, p.111
Stellar generator explores infinite power source at Princeton research center, 10/22, p.37

Space Age Materials & Techniques:
The new business of space simulation (metalworking) cover story, 7/9, p.58
Aerospace 1962-1972 forecast what defense contractors will buy (materials-technical advances), 12/3, p.25
Aerospace firms list 1972 equipment needs, 12/10, p.69
Air-to-ground missile control powered by hydraulic motor pumps driven by hot gases, 10/22, p.169
Aluminum foils-stronger for Echo balloon satellites, 8/13, p.20
Automatic flight simulator-computer, 12/31, p.12
External drive units turn satellites in space environmental testing chambers, 8/6, p.20
Foundries space age furnace (Plasmarc melting), 10/15, p.77
Frozen water used to form aerospace metals, 10/8, p.33
Heliostat (mirror mount) forms top of giant solar telescope, Kitt Peak Observatory, 10/15, p.111
Hypersensitive weight checker, Apollo materials, TO, 10/22, p.20
Maraging steels stir excitement, 7/30, p.81
Maraging alloy may boost rocket payload, better motor cases, 10/1, p.44
Modules hand assembled, automation too costly, 8/6, p.89
Moon program, space simulation, 7/9, p.59
Moon Surveyor "eyes", 8/27, p.19
Moonmobile using hydrogen fuel, 10/29, p.20
Orbiting telescope aimed at stars (GE test), 8/13, p.19
Polaris: Rings for launching tubes, 8/6, p.86
Precious metals role in aerospace business, 11/26, p.33
Rocket engine 6 and 9 lb of thrust, forecast, 12/10, p.20
Rocket engine 20 to 30 million lb thrust, NASA goal, 11/26, p.20
Rocket-missile casings machined on vertical turning-boring mill, 10/22, p.163
Rocket nozzles (copper, tungsten, graphite), 7/2, p.70
Saturn C-5, launching building at Cape Canaveral, 10/1, p.16
Shear forming for missile-rocket parts, 10/1, p.43
Space simulation chamber—vacuum greater than outer space, 9/10, p.99
Space simulation firm offers leak detection service, 10/22, p.167
Space vehicles powered by reactors, 10/29, p.20
Space vehicles (magnesium-lithium), 10/29, p.30
Space vehicles (columbium, molybdenum), 12/17, p.98
Telstar antenna, wedge shape jacks on track, 10/15, p.112
Vacuum, cold 'excursion boat' simulates outer space conditions, Saturn program, 10/15, p.108

Space Program:
British astronomer blasts program, 10/15, p.166
Lag blamed on government, 9/24, p.140
Space ferry service, NASA project, 7/30, p.12
Moon cities by 1980, 7/30, p.10

Specifications: See Standards

Spinning:
Bethlehem king sized plate spinning machine broadens size range in tank heads, 8/13, p.78

Springs:
Spring generator (electrical firm), 10/1, p.39

Stainless Steel:
AISI brochure "stainless outlook", 7/16, p.88
Armco's new Alloy 18-9 LW makes spinning, forming easy, 12/31, p.27
Auto trim favors stainless, cuts corrosion, 7/23, p.93
Extrusion of stainless steel for tubes, Sweden mill, 11/26, p.92
Jefferson Memorial Arch, polished stainless skin, 7/23, p.11
Oxygen furnaces for stainless production coming, 10/8, p.72
Stainless poundage used to build walking table conveyor (brewery), 8/20, p.82
Superheater and reheater stainless tubes heat treated with reverse roller to prevent unevenness, 8/6, p.74
See also Shipments

Stamping:
Auto door panels, new method (Wallace Expanding), 11/26, p.140
Clicking dies simplify blanking, 9/10, p.80
GM reveals tech. to make ferritic parts, 10/8, p.31

Standards, Specifications:
ASTM revises standards, ferrous materials and metallurgy, 10/22, p.166
Code change broadens use of pressure vessel steel, 10/15, p.88
Coding method for tin plate sought, 10/1, p.16
Grinding wheel specs: User-supplier consultation cost saver, 7/16, p.85
NBS researchers: Physical measurement, pilot of progress, 7/23, p.112
Outdated building codes and regulations limit new materials, methods (Paddock, U. S. Steel), 12/17, p.103

Stanford Research Institute:
Stainless wire mesh developed, 7/16, p.88

Stanford University:
Prof. Bunzel: Disputes small firms' importance in economy, 11/26, p.150
Prof. Houle: Role of company board misunderstood, 9/17, p.194
Prof. Kreps forecasts GNP, 7/23, p.10
Dr. Wallace: Hiring tests can show emotional flaw in boss, 9/24, p.140

Steel Alloys:
Aluminized steel, refinement in coating process using sodium vapor, 10/8, p.70 and 9/24, p.27
Armco's new stainless strip and sheet (18-9LW), 12/31, p.27
Forging steel ductility aided by homogenization, 9/17, p.129
Free machining steels keep up with pace of technology, 10/15, p.109
High strength steels (producers) vie with 'light' metals, 12/3, p.61
High strength steels listed (firms), 12/31, p.28
Maraging steels stir excitement (high strength), 7/30, p.81
Maraging and stainless high strength steels for high speed aircraft, missile work, 8/6, p.20
Republic's new Multicut series, better machinability, 12/17, p.88
Selenium-leaded steels, new group of supermachining, 8/13, p.33

Steel Dumping:
Steel dumping: Importers cry 'foul'—bring charges under Antidumping Act, 10/8, p.25
Treasury study of wire rods from Europe extended, 12/24, p.40
U. S. Steel charges foreign pipe producers, 12/24, p.15

Steel Founders' Society of America:
Donaldson: Co-op research for small firms, 7/30, p.54
Donaldson: Trade associations new role aids business communities, 10/15, p.80
Schumo: Steel casting shipments up, 9/24, p.28
Safety factors for steel castings (sponsors Cast Tech. study), 11/5, p.100
Steel casting outlook, report, 11/12, p.62

Steel Industry:
1962 earnings, 8/6, p.27 and 11/5, p.27
AISI Chicago exhibit: Tempo of the materials race quickens, 12/17, p.25
Antitrust-cost data: Is the steel case headed for a big test?, 9/10, p.25
Armco pioneers new uses for steel in residences, 12/17, p.27
Kaiser study: How West's steel use will shape up in '62 ('61 steel mill product receipts in seven western states by region), 9/10, p.28
Steel contract talks, government's role?, 11/19, p.27
See also Inventories
See also Steel Dumping

STEEL's Economic Panel
See Business (Economy)

Steelmaking:
50 ton vacuum melted ingot for research, 7/23, p.28
AISE exposition, new ideas-equipment, 10/1, p.24

Add-on furnaces (module concept) pays off on J&L bar annealing line, 10/1, p.46
Billet breaker automatic, 12/3, p.82
Coal injection system (Koppers co-op with Bituminous Coal Research), 10/1, p.27
Coal injection, Armco stack, 10/22, p.150
Coal injection, Weirton blast furnace, 8/6, p.86
Electrolytic line meets need for tin plate in Australia, 8/13, p.76
Fettling: Periscope aids in placement of dolomite in openhearth, 9/17, p.98
Fluid cushion (Hover Pulley) for strip processing line, 8/6, p.72
Holland: Giant special machine swings slabs from table to furnace, 12/17, p.102
Homogenization betters forging steel ductility, 9/17, p.129
Ingot molds, Immcor casting process, 7/9, p.73
Italy: Multiproduct plant processes pyrite ores, 7/9, p.70
Iron ore uniformity at Kaiser blending plant, 12/17, p.86
Openhearth-oxygen conversion, 9/17, p.100
Oxygen: 50% of open hearth steel made with oxygen, 85% of steel produced in open hearths, including oxygen, 9/17, p.100
Oxygen converter carbon content measured by French process, 9/10, p.98
Oxygen furnaces in operation by '64, ups capacity., 9/10, p.101
Oxygen (L-D) capacity-world, 7/2, p.85
Oxygen in miniature furnace, study, 9/10, p.31
Prestressed cold mill cuts variation in heavier gage strip, 10/22, p.150
Shaker ladle purifies foundry, merchant iron, 10/8, p.63
Small mill thrives by continuous casting, 11/19, p.88
Sodium vapor process upgrades aluminizing, 9/24, p.27
Sodium vapor helps make better aluminized steel, 10/8, p.70
Stream degassing process, Heppenstall, 8/6, p.71
Sweden: Mill extrudes stainless steel for tubing, 11/26, p.92
Tandem mill rolls light gage tin plate (J&L), 12/24, p.34
Thin tin plate lines, steel firms, 7/16, p.24
Thin tin plate mills brighten outlook, 7/30, p.62

Steel Mill Controls:
Automated stripmaking, 7/9, p.12
Automation making inroads in steelmaking, 9/17, p.92
Digital computer for cold mill (Abbey Wks.), 9/24, p.96
Digital computer at Stora-Kaldo oxygen facility, Roemer Wks., Sharon Steel, 7/9, p.27
Digital logging system for strip mill, Gary Wks., 11/19, p.101
Electronic feelers (guiding device) speed regrinding of mill rolls, 8/20, p.68
Selsyn device indicated roll opening in mills, 8/6, p.31

Steel Mill Products:
3rd quarter inventory survey, 9/3, p.28
4th quarter survey, 12/3, p.29
Kaiser survey—seven Western states: How steel use will shape up in '62, 9/10, p.28

Steel Mills:
B-L-H mill rolls heavier gage strip, 10/22, p.150
Belgium, integrated mill planned, 7/23, p.109
Bethlehem bar mill, 10/8, p.75
Bethlehem's Indiana Dunes mill, 12/10, p.26
Bethlehem pipe mill, Sparrows Pt., 12/10, p.33
Border Steel, merchant bar mill, 8/27, p.49
Brazilian mill, Guanabara, 8/20, p.122
Brazilian plant, Sao Paulo, to make bearing steel, 10/8, p.75
England, automated hot strip mill, 12/17, p.31
India, facility may get U. S. aid, 10/29, p.18
J&L tandem mill rolls light gage tin plate, 12/24, p.34
Korean mill, U. S. firms agreements, 12/17, p.33
Mediterranean and North Sea plants, 10/1, p.75
Minnesota considered for mill, Strategic-Udy, 7/30, p.10
Puerto Rican mill expansion, 11/12, p.29
Republic, electricweld pipe mill, 10/1, p.27
Tunisia seeks bids for steel mill, 8/20, p.28
U. S. Steel, Gary mill, better sheet flatness, finish, 8/20, p.76

STEEL's Panel of Economic Consultants:
Forecast: '63 economy, 10/1, p.21

Steel Service Center Institute:
Welch: Associations can lead in economic education, 8/6, p.153

Stockholders:
Ed Cyrol: Stockholders union a potent force if organized, 7/30, p.40
Patton: Enlist stockholders' help on legislation, 12/3, p.17

Stockpile:
Aluminum producers disposal plan, 7/2, p.24
Aluminum industry angered by federal disposal plan, 10/22, p.28
Aluminum disposal postponed, 10/29, p.28
Stockpile disposal plans bogged in controversy, 7/30, p.23
Symington bill, government use and sale of surpluses, 7/16, p.22
Tin disposal, OEP working on plan, 7/2 p.104
Tin disposal-government to announce plans, 7/23, p.155
Tin—government recommends no further release, 8/6, p.28
Tin disposal, bids start, 9/3, p.29

Strapping:
Signode introduces Dymax-nylon strapping (with DuPont), 12/31, p.17

Strip Processing Line:
BISRA: Fluid cushion (Hovey Pulley) revamps strip line, 8/6, p.72

Suggestion Systems: See Incentives

Superconductivity:
Battelle report, 9/17, p.19

Supermarkets:
Self-serve federal supermarkets trim red tape (GSA), 12/31, p.16

Suppliers:
User-supplier consultation on grinding wheel specs, cost saver, 7/16, p.85
Volkswagen (Nordhoff) slams U. S. suppliers; urges more free world trade, 10/29, p.69

Surface Defects:
Bark removal cuts rod surface defects, Republic, 12/24, p.36

Surface Treatment:
See Finishes, Coating, Paints
See Metal Cleaning, Finishing

Surveys:
Attitude surveys (employee motivation), 7/23, p.123
Business outlook (STEEL survey), 7/9, p.21
Skilled labor shortage, training, 8/27, p.27
Metalworking managers, what they expect in '63, 11/26, p.71
Metalworking managers (see Metalworking Speaks Out)

Sweden:
Days lost in strikes, trade union members involved, 7/9, p.55
Extrusion mill, stainless for tubes, 11/26, p.92
Kaldo converter purchased by Norrbottens Jarnverk, 12/3, p.118

Syracuse University:
Wheadon: College research needs industry support, 8/6, p.153

T

Taconite:
Prereduced iron ore pellets (79% iron) cuts costs, 9/10, p.20

Tape Control: See Numerical Controls

Taxes:
1963 tax bill: How industry will fare with JFK's tax cut, (drop in 52% corporate level; other incentives), 8/20, p.25
A scoreboard needed to keep up with tax hassle (corporate and personal), varied opinions, 12/24, p.22
Corporate and personal tax cut endorsed by Rep. Mills; odds favor a two step plan, 12/10, p.29
Corporate tax reduction, 11/5, p.26; form it may take, 11/26, p.17
Expense account law, 11/26, p.15
Expense account reporting, ($10 now $25, other changes), 12/10, p.28
Firm fights number of tax returns required, 8/20, p.26
Metalworking survey: Should we have a tax cut now? 9/24, p.102
Professors favor cut on personal income (Suits and Weston), 8/13, p.26
Sen. McCarthy against tax credit section, 8/20, p.88; metalworking concern, 9/17, p.29
Senate plan for tax credit, 7/23, p.23
States tax collection, industry objects, 7/2, p.23
Tax deduction for money to stimulate voter interest, Internal Rev. ruling, 10/8, p.18
Union members push low income not corporate tax cut, 8/13, p.26
See also Depreciation

Technology:
Aerospace 1962-72 forecast for materials-methods, 12/3, p.25
Art and technology combine—to make good diecastings, 12/10, p.74
NASA shares knowhow with nondefense firms, 8/27, p.28
Ramo: Co-op of technology with man and machines, 12/3, p.120
Ramo: Technology shaping future of society, 8/6, p.153
Rickover addresses Metal Congress: You're not geared to new technology, 11/5, p.25
Technology remolds scrap industry's role, 11/12, p.66
Technology provides more savings in investment casting, 7/16, p.80
Technology widens investment casting potential, 11/19, p.84
Technology wipes out jobs (labor study), 7/2, p.67

Telephones:
Swedish telephone memorizes numbers, etc., 7/30, p.12

Temperatures:
Cooling system for masers close to absolute zero, 8/27, p.31
Diffusion hardening process gives metals high temperature strength, 8/6, p.76
Explosive growth of temperature requirements, 1900-1962, 7/23, p.115
Heat measured by light pulse tech., 7/9, p.12
Subzero rolling guidelines, 7/30, p.12

Testing: See Inspection, Testing

Thermoelectrics:
Miniature-thin film thermoelectric generators, 7/2, p.12
Strontium titanate rod generates electricity, 7/9, p.10
Thermoelectric air conditioner, experiment, 9/10, p.20
Thermoelectric generators, new line, 7/16, p.23

Tin:
What happens to tin now? (shortage-runaway prices), 7/23, p.155
See also Stockpiles

Tin Plate:
Australian electrolytic line meets need for tin plate, 8/13, p.76
Coding method sought, 10/1, p.16
J&L's new tandem mill rolls light gage tin plate, 12/24, p.34
Thin tin plate for cans, steelmakers facilities, capacities, 7/16, p.24
Thin tin plate mills, container market, 7/30, p.62

Titanium:
Titanium corrosion proofs equipment at petrochemical plant, 8/13, p.18
Titanium heat exchangers made in plate form, 7/23, p.136
Titanium lining for steel stack, 10/15, p.98
Titanium tank assembly passes pressure tests, 8/20, p.76

Tools & Dies:
Clicking dies: These dies simplify blanking, 9/10, p.80
Concrete dies can't stand up in explosive forming, 8/27, p.61
Concrete dies used in cold forming aircraft aluminum panels, 11/19, p.31
How to reduce failure of thread rolling dies: Peter Leckie-Ewing, 7/2, p.66
Low carbon dies approved, 8/20, p.20
Plastic replacement tool reduces downtime (while cast iron die ring is repaired), 8/13, p.74

Tools (Cutting):
Armour seeks tougher cutting tool materials for space age, 10/15, p.111
Ceramic tools users take heavy cut, 10/15, p.86
Tool life lengthened by thermoelectricity unit, 12/31, p.17

Tools (Hand):
Magnelok, NASA tool for metal fabricating, 10/1, p.14

Toys:
Toy train easily assembled with semitubular rivets, 7/16, p.76

Trade Associations:
Associations can lead in economic education (Welch), 8/6, p.153
Associations cover 'the great middle ground,' new role aids business community, 10/15, p.80

Trade Bill: See Government

Trade Fairs:
Chicago World Marketing & Economic Development Conference, 8/6, p.31
Chicago: Hodges presents 'E' awards to metalworking firms, 8/13, p.86
Czechoslovakia Fair, 9/17, p.192
Milan machine tool show, 11/5, p.164; 11/126, p.31
Osaka machine tool show, 11/26, p.29; 7/2, p.51

Trade Mission:
Commerce Dept. trade mission to Germany (report), 8/13, p.31
See also Japan

Training:
Apprenticeship & Training Bureau (Goshen): Is there a skilled labor shortage, training programs, 8/27, p.25
ARA retraining programs, 9/10, p.92 and 11/5, p.18
Audio-visual system speeds proficiency, 7/30, p.25
Bearing plant, Greensburg, Ind.—training program for machine operators, 12/31, p.18
Individualism stressed in youth training, 12/10, p.126
Job retraining, a co-op venture (Lohrentz, U. S. Steel), 11/12, p.116
Industry can learn from overseas training (Coffin-AID), 11/12, p.116
Reliance program in move to Indiana facilities, 11/26, p.28
Wirtz (Labor Dept.) plan to fight job obsolescence, 11/19, p.94

Transistors:
Automatic assembly at Sheffield (cover), 12/17, p.74
Microscopic sensors, new applications, 10/29, p.17

Transportation:
Double-decker aluminum rapid transit cars (Australia), 12/31, p.62
Marine Corps land and water vehicles, LVW, 10/29, p.31
Mass transportation poses headaches and opportunities, 10/29, p.29
Monorail cars hang from I-beam rail, L. A., 11/26, p.33
Pedipulator, manned walking vehicle, 7/30, p.11
Rationalization urged to halt nationalization, 8/6, p.91
Transit expressway (overhead) computer controlled, 12/24, p.24

Trends in Metals: See Metallurgy

Tube Mills:
Sweden: Automated seamless mill makes tubing for bearings, 9/10, p.84

Tubing: See Pipe, Tubing, Fittings

Turbines:
Coal fired gas turbines, 8/20, p.20
Pending contracts for Yellowtail Dam, Mont., Japanese firm low bidder, 7/30, p.25

U

Ultrasonics:
Generating ultrasonic waves, Hungarian report, 9/17, p.20
Stress analysis test for products, 8/20, p.82
Ultrasonic cleaner with filtration system, 8/13, p.31
Ultrasonic corrosion test, 9/17, p.20

Underground Space:
Missouri mined quarry-holes used for warehouse and manufacturing space, 11/12, p.68

Unions: See Labor

U. S. Chamber of Commerce:
Labor costs and fringes (chart), 9/3, p.18

University of California:
Weston favors tax cut on personal income, 8/13, p.26

University of Illinois:
Prof. Korst: Time for two-way flow of technical talent, scientists urged return to campus, 8/13, p.118

University of Chicago:
Dr. Halstead: New goals for managers' mental health (psychological tests), 12/3, p.71
Prof. Houle: Role of company board misunderstood, 9/17, p.194
Prof. Odiorne: Profile of today's executive: Sensational thinker, 12/17, p.160

University of Michigan:
Annual Outlook Conference: Economists see little change for '63, 11/26, p.27
Prof. Fitts: Machines are coworkers, not subordinates, (human behavior), 9/10, p.170
Prof. Haber: Weakness of private pension plans, 8/27, p.92
Hy Kornbluh: Calls for diplomatic corps for labor negotiations, 7/9, p.46
Prof. Young: Engineers pass up autodom for glamour of space age, 9/3, p.115

Recruiters seek research and development engineers, 9/10, p.94
Prof. Suits: Favors tax cut on personal income, 8/13, p.26

University of Pittsburgh:
Fitterer: Steel industry should support college metallurgy departments, 11/5, p.156

University of Scranton:
Fr. Garrett: Chides business for moral lapses, 7/23, p.100

V

Vacuum:
D-H vacuum degassing unit, Copperweld-Aristoloy Div., 11/26, p.92
Diffusion bonding (vacuum hot pressing), 8/6, p.85
Diffusion bonding at GE (vacuum hot pressing), 12/24, p.85
R&D funds for vacuum technology for defense, 11/19, p.31
The new business of space simulation, what's coming in outsized vacuum facilities, 7/9, p.62

Value Analysis:
Britain imports U. S. service, 7/9, p.62
Emerson Electric: New goals for cost cutters, 7/16, p.71
Racine Hydraulics: Program cuts costs, 11/5, p.90

Vanadium:
U. S. tests for structural use, 10/29, p.30

Venezuela:
Steel works, Orinoco basin, nears completion, 7/16, p.68

W

Wages:
Conveyor industry minimum wage (Walsh-Healey), 7/16, p.26
Labor Dept. reports new contracts up wages 3.2 per cent, 8/6, p.17
Noninflationary wage gains, 1st six months, 8/13, p.17
Walsh-Healey (see Gov't), 8/20, p.27

Warehouses:
Robot order filling doubles warehouse space (computer oriented automatic warehouse), 10/1, p.40
Underground warehouses, Missouri development program, 11/12, p.68
Ryerson-Dutch warehouse service, 12/31, p.18

Warehousing, Distributors:
Steel distributors revise price schedules, 12/10, p.100
Service Center prices at low levels, 9/17, p.26
Service Center shipments, industrial steel products, 10/29, p.53
Steel service centers feel profit squeeze despite larger volume: Changes in published service center base prices, 7/9, p.88

Wastes:
England: Disposal of radioactive waste materials, 12/3, p.118
Good engineering cures plant water problems, 12/3, p.76
Magnetic flowmetering cuts maintenance cost (processing waste water from rolling mills), 8/6, p.92
Oily wastes re-usable with refining method, 9/17, p.110

Water:
Frozen water used to form aerospace metals, 10/8, p.33
Interior Dept.—salt water conversion program, 7/9, p.26 and awards and contracts, 7/30, p.11

Wayne State University:
Johnson: Bit of dirt good for engineers, 9/3, p.128

Weighing: See Scales, Weighing

Welded Tubing:
Electric welded tubing moves up to bigger jobs, 10/1, p.35
Welded tubing scores in power-plant application, 10/15, p.85

Welding Equipment:
English firm uses giant manipulator to weld big parts for nuclear power station, 7/2, p.28
Welder cuts eight strips at a time, 9/17, p.126

Welding (Arc):
Arc spotwelding (Mig and Tig) potential improved by automation, 7/23, p.120
High level rig for welding power transformer covers, 11/26, p.35
Plasma arc torch works with steam and a carbon arc, 9/10, p.20

Welding (Electron Beam):
High voltage electron beam weld for bimetal turbine wheels, 7/9, p.12
Operators weld larger assemblies, 8/20, p.31

Welding (Electroslag):
Russian advances reported by Dr. Oehler, 12/17, p.160

Welding (Resistance):
CO_2 welding for conveyor chain, 10/8, p.69
Combination of resistance-ultrasonic called Pulsonic welding, 7/16, p.23
Space tool welds microscopic components (Microwelder), 9/10, p.95

West Coast:
Kaiser survey: West Coast consumption of steel mill products (seven states), 9/10, p.28

Wharton School of Finance:
Prof. Gomberg: Solving labor tangle, 8/13, p.118
Prof. Gomberg: Compromise is basic to U. S. labor relations, 11/12, p.116

Wiremakers:
Feel foreign competitive cost-profit squeeze, 7/30, p.24

Wire Mesh:
Metal mesh belts for auto conveyor line, 9/17, p.35
Metal mesh sling on large mill rolls minimizes rigging time and damage, 8/13, p.31
Stainless wire mesh developed at Menlo Park, 7/16, p.88

Wire:
Nickel clad wire offered, 10/15, p.20
Rubber tires reinforced with steel wire, 7/9, p.24
Wire coating exhibit, Metal Show, 10/22, p.168

Work Measurement:
Chapin: Work measurement spots indirect labor force wastes, 9/24, p.28
Niebel (Penn Univ.): Any job can be measured, 12/31, p.64

World Trade: See Foreign Trade

X

X-Ray:
High energy x-ray tests rocket motor, 8/20, p.18
Paper radiographic prints for weld inspection and repair, 9/24, p.90
Pipe weld inspection with x-ray amplification, 12/3, p.78
Radiation scanner paid for in 1st application, 7/16, p.78
X-ray gage for small mills, warehouses (metal thickness), 10/8, p.19

Z

Zinc:
Battelle study: Plated zinc diecastings, 7/30, p.56

COMPANY INDEX

A

AAA Industrial Corp.:
Buys Navy Weapons steel foundry, B 9/10, p.35
Buys nonferrous foundry of Sperry, 8/20, p.33

Abar Corp.:
Vacuum furnace has dual heating chambers, IE, 11/19, p.158

Accuracy Inc.:
Buys Alloy Welding-Nuclear, B, 9/17, p.33

Ace Mfg. Co.:
Licensed by Electric Autolite, B, 7/23, p.28

Acme Mfg. Co.:
Abrasive belt finishing machine, IE, 8/27, p.100
Automatic machine deburrs rolls, shafts and rods, IE, 12/24, p.76
Unit applies satin, brush line finishes, IE, 7/2, p.71

Acme Steel Co.:
Award for air and water pollution control, 10/29, p.19
Expansion program, 10/29, p.31
Flexible rubber couplings on furnace peeler drive cuts shock, 11/19, p.83
Inflatable rubber bags cut freight car bracing, costs, 9/10, p.97

Acoustica Associates Inc.:
Ultrasonics clean, rinse, IE, 11/12, p.134

Acromark Co.:
Automatic feeder for hot stamping press, IE, 11/15, p.167

Aeroquip Corp.:
Buys Barco, B, 10/8, p.33

Aerojet-General Corp.:
Tungsten tubing for reactors, 11/5, p.20
Unit welds microscopic area, 7/23, p.12

Aeronca Mfg. Corp.:
Ceramic foam resists heat, 8/6, p.20

Aget Mfg. Co.:
Dust collector for high volume work, IE, 12/17, p.173

Agnew-Higgins Inc.:
Laminar flow cleanroom for space age use, 12/3, p.33

Air Products & Chemicals Inc.:
Adds air separation plant, Ky., B, 8/20, p.35
Buys Keenan Welding Supplies, 7/30, p.28
Cryogenics cooling system for masers close to absolute zero, 8/27, p.31

Air Reduction Co. Inc.:
Rothschild: Research for cheaper welds, 8/20, p.125

Air Vac Corp.:
Air stacker, 9/24, p.167
Modular vacuum power lifter, IE, 10/29, p.99

Ajax Magnethermic Corp.:
Electric induction unit heats aluminum extrusions, 8/13, p.35
Induction furnace for Firth-Sterling, 10/8, p.35
Induction furnaces melt 1200 lb charges, 8/20, p.88
Induction hardening line for steel bar producer, 9/24, p.90
Sells interest in Safety Electric, B, 11/12, p.35

Akron Sand Blast & Metallizing Co.:
Plastic flame sprayed, 11/5, p.20

Alan Wood Steel Co.:
Expands iron powder facilities, 10/1, p.95
H. R. Wood: Profit squeeze, 12/24, p.13

Alcan Aluminum of South Africa Ltd.:
Expands, 8/20, p.33

Algoma Steel Corp. Ltd.:
Krupp may buy steel, 12/10, p.124
Sault mill to made wide sheets (eye auto market), 10/1, p.27

Allegheny Ludlum Steel Corp.:
Andrews: New goals for purchasing, 8/13, p.67
Clark King (obit), 8/20, p.29
Enters welded stainless pipe field; agreement with Youngstown Welding & Eng., 11/12, p.29
Hanley: A lid on wage costs, 10/22, p.18
Miniaturization speeds metallurgical testing, 9/10, p.82
Muffler steel resists corrosion, 11/5, p.94
Pilot mill, Research Center, Brackenridge, 7/23, p.139
Price cut on stainless steel, 10/15, p.26
Ways to end auto body trim corrosion-stainless steel, 7/23, p.11

Allen & Son Inc.:
Allen: How valuable is a college degree, 7/30, p.40

Allen-Sherman-Hoff Pump Co.:
Merges, B, 7/23, p.27

Allis-Chalmers Mfg. Co.:
Betatron (mobile) ordered by Belgian firms, 9/3, p.19
Develops electronically controlled electric lift trucks, 10/8, p.33
Develops self-fluxing iron ore pellets, 7/2, p.26
Five lift trucks added to engine powered line, IE, 11/19, p.153
Fuel cell powers golf cart, 12/10, p.20
Heavy duty starter line, user benefits, IE, 9/10, p.180
Hydraulic turbines bid for Yellowtail Dam, 7/30, p.25
IUE labor pact features yearly bonus, 8/27, p.29
Shop testing a journal bearing-king sized, 10/29, p.90

Alloy Rods Co.:
Wire feeder, IE, 10/8, p.122

Alloy Steel Products Co.:
Electric induction furnaces melt 1200 lb charges, 8/20, p.88

Alside Inc.:
Libbey-Owens investment, 11/12, p.18

Altamil Corp.:
Buys Cummer-Graham, B, 7/30, p.28

Aluminium Ltd.:
Culver: Forecasts '63 aluminum sales, 10/1, p.25

Aluminium Laboratories Ltd.:
Jominy test for quench sensitivity of aluminum alloys, 7/23, p.12

Aluminum Co. of America:
Buildings zippered with Snug Seam, 12/24, p.14
Builds rolling mill near Warwick smelter for light gage sheets, 10/22, p.33
Builds fifth West Coast plant, 11/12, p.33
Continuous heat treat coil line, Tenn. Wks., 11/12, p.65
Die and permanent mold casting plant at Edison, N. J.: Art and technology combine to make good diecastings, 12/10, p.74
Extrusion billet price withdrawn, 11/19, p.17
Foils stronger, used in Echo balloon satellites, 8/13, p.20
Litchfield: Aluminum potentials (cover pic), 8/13, p.60
Mill order on minimums, 11/5, p.17
Oil pans of diecast aluminum reduce diesel engine weight, 9/3, p.33
Price reductions in mill products, ingot price under pressure, 10/8, p.27
Small lot orders (ingots under 2000 lb) handled by distributors instead of mill, 8/13, p.18
Strikebound primary aluminum plants, 8/6, p.29

Aluminum Production Corp.:
Changes name, B, 9/10, p.35

Alvey-Ferguson Co.:
Unit phosphatizes, cleans steel housings, IE, 7/23, p.148

American Aviation Inc.:
Moore (Autonetics) foresees automatic secretary machine, 7/16, p.58

American Brake Shoe Co.:
Denison: Diecast trim press, IE, 10/22, p.254

American Can Co.:
Seam unit closes metal cans, 10/22, p.161

American Demag Corp.:
Model of integrated steel mill at exposition, 10/8, p.103

American Gage & Machine Co.:
Kneemaster positioner, IE, 7/2, p.72

American Gas Furnace Co.:
Heat treating line can be built over period of years, 10/22, p.239

American Machine & Foundry Co.:
Paper radiographic prints mean savings at Buffalo Div., 9/24, p.90

American Metal Climax Inc.:
Merges, 9/17, p.33
Negotiates for Kawneer and Apex Smelting, 7/2, p.28

American Motors Corp.:
Cushman: New goals for collective bargaining, 9/24, p.91
Rambler market outlook, 9/24, p.130
Rambler takes new tack on body building, 9/24, p.129
Workers may have $7 million to split for wages, fringes at year end, 8/6, p.19
Workers' profit sharing fund, 12/17, p.92

American Precision Industries Inc.:
Buys Basco, B, 11/26, p.35

American Radiator & Standard Sanitary Corp.:
Fluid drive model, IE, 12/10, p.136
Precipitator redesign reduces weight, size, IE, 9/10, p.178

American Sip Corp.:
Rudel: Depreciation reform benefits, 7/23, p.26

American Sisalkraft Co.:
Wrap protects oily steel, 7/2, p.57

American Smelting & Refining Co.:
Strauss: Common market affects trade in lead, zinc, 10/8, p.29

American Telephone & Telegraph Co.:
Underground cables and telephone wires by '70s, 12/31, p.10

American Tool Works Co.:
Sine bar template, 7/2, p.78

American Vacuum Co.:
Flux recovery unit, IE, 10/8, p.122

American Welding & Mfg. Co.:
Dr. Oehler: Russian welding report, 12/17, p.160

Ames Co., O.:
Plating system eliminates buffing, 7/9, p.67

Amsted Industries Inc.:
Buys assets of Johnson Machine, 9/24, p.35
Licenses firms for pressure pouring, 8/6, p.33

Anchor Alloys Inc.:
Buys Roosevelt Metals, 7/30, p.28

Andrew Engineering Co.:
Unit produces parts from drawings, IE, 11/12, p.136

Anocut Engineering Co.:
Electrolytic lathe, IE, 8/6, p.155

Apex Smelting Co.:
Merges, B, 9/17, p.33

Arbee Corp.:
Buys Hoyt Wire Cloth, B, 9/10, p.35

Arcair Co.:
Foundry-metal removal torches, IE, 11/12, p.138

Armco Steel Corp.:
Aims at steel-residences markets, 12/17, p.27
Aluminizing lines: Sodium vapor process before coating, 9/24, p.27
Aluminizing lines: Sodium vapor helps make better aluminized steel, 10/8, p.70
Ambridge: Lightweight insulating firebrick lining for reheat furnaces, 10/8, p.67
Ashland Wks.: Blast furnace and L-D process facilities, 11/5, p.33
Ashland Wks.: Steam driven turboblowers on blast furnace, 9/10, p.86
Ashland stack slated for coal injection system, 10/22, p.150 and 11/5, p.110
Baltimore Wks.: 2000 ton forging press installed, 11/12, p.33
Newsreels used in employee relations, 11/19, p.106
Sheffield Div.: Combination mill to alternate on slab, plate rolling, 8/27, p.56
Middletown Wks.: Terne coat line, 8/27, p.35
National Supply: Horizontal boring mill and radial drill, 7/9, p.66

Armstrong Cork Co.:
General purpose epoxy also encapsulates parts, IE, 8/27, p.107

Aro Corp.:
Air powered hoist, speed featured, IE, 9/24, p.150

ASEA Electric Inc.:
Imports special equipment, 10/8, p.104

Assembly Engineers Inc.:
Valve withstands heat, pressure, IE, 12/3, p.136

Assembly Products Inc.:
Electronic feelers (guiding devices) speed regrinding of steel mill rolls, 8/20, p.68

Associated Spring Corp.:
Buys Westmetal Products, 8/13, p.35

Associated Testing Laboratories Inc.:
Merges, 7/2, p.28

Atlas Foundry Inc.:
Formed to purchase Atlas Foundry Co., 8/20, p.33

Atlas Press Co.:
10 in. lathe, operating advantages, IE, 9/17, p.205

Atlas Steels Ltd.:
Continuous casting machine contract, 10/29, p.18 and 12/19, p.29
Tracy, Que., plant ready soon, 8/27, p.56

Atomic Shield Testing Alliance Inc.:
Radiation shield testing system, 7/2, p.68

Code: B—*Briefs;* IE—*Industrial Equipment;* TO—*Technical Outlook*

August Thyssen A. G.:
Dr. Sohl: Forced to develop larger industrial units in Europe, 7/16, p.58

Australia Iron & Steel Pty. Ltd.:
Electrolytic hot dip tinning line, 8/13, p.76

Automatic Electric Co.:
Link: Keep tight rein on indirect labor costs, 11/26, p.18

Automatic Spot Taping Machine Co.:
Machine tapes wire bundles, IE, 10/15, p.174

Automation Industries Inc.:
Sperry Products billet tester, IE, 12/3, p.132
Sperry Products ultrasonic test for mill products, IE, 8/6, p.157

Autonetics Div.: See American Aviation

Avco Corp.:
Co-op research for MHD generator, 7/30, p.55
Adhesive takes 72 G, 10/8, p.68
Dr. Kantrowitz: Ignoring tradition blamed for space lag, 9/24, p.140
Renames Nashville Div., B, 11/19, p.35

Avis Industrial Corp.:
Buys James Steel & Tube, B, 8/6, p.33

Avnet Electronics Corp.:
Buys Shaw Processes Ltd., B, 7/30, p.28
Automatic diecasting machine with vacuum attachment, IE, 9/3, p.138

Avnet-Shaw Corp.:
Buys Colonial Eng., B, 11/26, p.35
Machine makes molds for Shaw process, IE, 11/19, p.156

Avondale Shipyards Inc.:
Carter: An American rarity a busy shipyard, 10/15, p.166
Drilling 'island' to use conventional equipment, 12/10, p.93

B

BSA Precision Castings Ltd.:
Fluidized bed triples moldmaking, 7/9, p.10

Babcock & Wilcox Co.:
Castable refractories minimize heat transfer, IE, 10/29, p.94
Cold drawn extrusions used without further finishing, 8/20, p.64
Continuous, tube reheat furnace, Beaver Falls, B, 8/6, p.35
Hollow pulverizer ball cuts inventories, 9/17, p.98
Grossman: Co-op research, 7/30, p.55
Nielsen: Aid to education, 9/3, p.128

Bacharach Industrial Instrument Co.:
Buys line from Serdex, B, 9/10, p.33

Bacon Ultrasonics Inc.:
Ultrasonic cleaner, IE, 7/2, p.79

Bahrs Die & Stamping Co. Inc.:
Numerical control benefits for small shop, 8/20, p.73

Bailey Meter Co.:
Constructs eng. and dev. center, 8/27, p.33

Baird Machine Co.:
Four slide unit forms long stock feed lengths, IE, 9/17, p.208
Safety device on transfer presses, IE, 8/6, p.159

Baldwin-Lima-Hamilton Corp.:
Alloy addition accuracy with load cell weighers, 7/9, p.72
Extrusion press, Nuclear Metals lab, 11/19, p.35
Press automatically forges rings-combines steps, 7/16, p.22
Prestressed cold mill cuts variation in heavier gages (strip), 10/22, p.150
Tricycle type hydraulic crane in semitrailers, IE, 12/17, p.173

Balteau Electric Corp.:
Portable x-ray units, IE, 11/5, p.170

Barber-Colman Co.:
Program controller, minimum of panel space, IE, 12/31, p.71
C & S Products a div., 12/17, p.35

Barnes Drill Co.:
Cylinder block boring and a honing machine, IE, 8/27, p.100
Machines hones bores to 12 in. ID, 12/17, p.170
Setup solves machining problems, IE, 11/12, p.134

Baron Steel Co.:
Track mounting magnifies machine utility, 7/23, p.133

Barrow Steel Works Ltd.:
Continuous casting machines, 9/17, p.87

Bartlett-Snow-Pacific Inc.:
Automaker contracts foundry facilities, 8/27, p.82

Basic Products Corp.:
Como-Cast and Hevi-Duty builds cold mold casting units, 10/22, p.33

Bausch & Lomb Inc.:
Strip chart recorder-electronic, IE, 10/29, p.98

Bear Mfg. Co.:
Bekomatic balancing machine, IE, 10/29, p.99

Beatty Machine & Mfg. Co.:
Circle shear, IE, 1/8, p.128

Beckman Instruments Inc.:
Buys Stevens-Evans, B, 11/26, p.35
Merges Vector, 12/17, p.35

Behr Machinery & Equipment Corp.:
Portable wire straightener, IE, 12/10, p.141

Bellaire Products Inc.:
Aluminum prefab house tested in Nigeria, 7/9, p.11

Bell & Howell Co.:
Percy: Drive hard bargain on tariffs, 9/24, p.17
Percy: Drive for freer trade, 11/26, p.147

Bell Telephone Laboratories:
Antenna for Telstar reception, 10/15, p.112
Gaseous masers displayed, 8/20, p.88
Glue-one molecule thick, bonds polyethylene and metal, 12/31, p.12

Bell Telephone Co.:
Printed circuit conductors formed from copper powders, 12/10, p.80
Underground cables, wires, 12/31, p.10

Benchmaster Mfg. Co.:
Deep throat press, IE, 7/16, p.103

Bendix Corp.:
DynaPoint 32: Market research helps introduce positioning control system, 12/10, p.64
DynaPoint for turret drill, corrections dialed, IE, 7/9, p.76
Eclipse clutch, brake line for steel mill, etc., 8/6, p.158
Maraging steel for aircraft driveshafts, 7/30, p.81
Tape control for plotting tables or drafting machines, IE, 9/3, p.137

Besly-Welles Corp.:
Horizontal disc type grinder, IE, 7/9, p.75

Bethlehem Corp. (former Bethlehem Foundry & Machine Co.):
Industrial leak detection service in space simulation field, 10/22, p.167

Bethlehem Fabricators Inc.:
Buys steel building assets of Luria, B, 12/31, p.19

Bethlehem Steel Co.
Adds bar mill, Alloy & Steel Div., 10/8, p.75
Adds cobalt leaching facility, Sparrows Pt., 8/20, p.35
Adds oxygen furnaces, Lackawanna, 11/15, p.33
Bickford: Charges steel import benefits illusory, 8/27, p.92
Big stack-blast furnace shell moved for foundation repairs, 10/1, p.27
Blast furnace 'B'-output a day, 10/22, p.150
Challenges Kefauver on data compliance, 8/6, p.29
Conveyor weighers (Grace Mine) control iron pelletizing process, 10/29, p.46
Enters prefinished sheet market, 8/20, p.33
Galvanizing line (4th added), zinc coated sheet, 12/31, p.19
Homer: Bolsters defense against profit squeeze, 8/6, p.17
Indiana Dunes area, sells state 252 acres, 8/20, p.90
Indiana Dunes mill plans, 12/10, p.26
Introduces high strength piling, 11/19, p.115
Modernizing tar distillation plant, Franklin Wks., 8/13, p.91
Multidiameter bolt threads rolled in single operation, 7/30, p.27
Precoated sheet steel products, 11/26, p.86
Revises tool steel bar prices, 12/24, p.40
Sparrows Pt. big spinner broadens size range in tank heads, 8/13, p.78
Sparrows Pt., pipe mill, 12/10, p.33

Biddle Co., James G.:
Generator for cable fault detection, IE, 12/17, p.172

Bigelow-Sanford Inc.:
Crestliner Div., automatic welding system, 7/2, p.70

Binks Mfg. Co.:
Electrostatic hand spray gun, 10/8, p.28

Birdsboro Corp.:
Builds big spinner for wider range of tank heads, 8/13, p.78
King sized plate spinning machine turns out flanged tank heads, 8/13, p.78
Saw for billets, IE, 9/3, p.136
Speed reduction unit for furnace tilting, IE, 11/12, p.136

Blaw-Knox Co.:
Aluminum mill rolls sheets to 56 in. wide, 8/13, p.33
Korean steel mill, agreements signed, 12/17, p.33

Bliss & Laughlin Inc.:
Machine produces steel bars continuously from coiled stock (joint venture with Vaughn), 12/17, p.29

Bliss Co., E. W.:
Acquiring rights to billet conditioner, 12/24, p.23
Foil press, IE, 12/10, p.141
Forms Australian subsidiary, B, 10/1, p.28
Inclinable press line, IE, 7/30, p.72
Presses for high production work, IE, 9/3, p.135
Tilter discharges hot coils onto conveyor, 10/22, p.161
Transfer feed press for Portugal, 11/5, p.166

Bodine Electric Co.:
Buys Microdyne, B, 12/17, p.35

Boeing Co.:
Computer center opened, 12/24, p.16
Gun breech used in ceramic manufacture, 11/19, p.98
Hydraulic cylinder from seamless tubing, 11/5, p.96

Booz, Allen & Hamilton:
Randel addresses World Marketing Conference, 8/6, p.31

Border Steel Rolling Mills Inc.:
Merchant bar mill, 8/27, p.49

Borg-Warner Corp.:
Combines Calif. facilities, B, 8/13, p.35
Marine Corps (land and water) vehicles, 10/29, p.31
Norge competitive pressures of price cutting, 11/12, p.17
Sayre (Norge Div.): New goals for marketing men, 7/30, p.57

Bowman Steel Corp.:
Traveling shear solves handling problem, 9/10, p.18

Braner Engineering Inc.:
Overarm coil separator, IE, 8/27, p.102

Branson Equipment Co.:
Agitation cleaner for small parts, IE, 7/23, p.144
Alkaline cleaner removes rust, IE, 7/9, p.84

Breeze Corp.:
Aerospace Electronics Div. formed, B, 9/3, p.34

Brew & Co. Inc., Richard D.:
Vacuum furnaces-side loading, IE, 12/10, p.138

Bridgeport Brass Co.:
Adjusts copper mill prices, 12/17, p.133
Modernization program at Reactive Metals plant, 9/3, p.34

British Iron & Steel Research Assn.:
Electro line (pilot size) for narrow strip, 8/27, p.54

British Light Steel Pressings Ltd.:
Plastic replacement tool reduces downtime, 8/13, p.74

British Oxygen Co. Ltd.:
Supersonic research plane spot-welded-stainless, 7/23, p.122

Bristol Aircraft Ltd.:
Tungsten inert gas (Tig) spot-welding, 7/23, p.121

Brown & Sharpe Mfg. Co.:
Numerically controlled turret drill introduced, 7/2, p.27 and IE, 7/16, p.98
Numerical control program, cuts preparation time, (SNAP), 10/29, p.30

Brunner Corp.:
Milling machine, Spiramatic Jigmil, 11/19, p.83

Brush Beryllium Co.:
Beryllium aids brake discs, 12/3, p.20
Beryllium copper powdered, 7/2, p.12
Moves offices, B, 11/12, p.33

Brush Instruments: See Clevite

Budd Co.:
14 arc spotwelders on gantry type framing fixture, 7/23, p.122
To buy Brightwater Paper Co., B, 7/9, p.28
Testing machine, IE, 11/5, p.164

Buell Engineering Co. Inc.:
Buys Union Boiler, B, 12/31, p.19

Buffalo Forge Co.:
Award to engineer for tech. to end warpage of galvanized scroll fan housings, 7/30, p.61

Bullard Co. Inc.:
A new fiber glass reinforced grinding wheel 'Pup-Cup' for Lukens, 7/16, p.85
Vertical turret lathe for Lenape Hydraulic, 11/5, p.87

Bundy Tubing Co.:
Auto engine push rods, welded tubing, 11/5, p.94

Bunell Machine & Tool Co.:
Bottom bed of press movable, IE, 7/30, p.69
Die tech. speeds forming of truck doorposts, 10/29, p.20
Punch press tooling makes round cylinders, IE, 8/27, p.107

Burrell Corp.:
Roller type mill deaerates, IE, 12/31, p.70

Burgmaster Corp.:
Attachment for turret drill, IE, 7/30, p.74
Drill handles electronic parts, IE, 7/16, p.92
Tape controlled turret drill, IE, 11/12, p.131

Burklyn Co.:
Rotary table, no lubrication, IE, 7/23, p.142

Burndy Corp.:
Mrs. Pellier: Bias against women engineers, 9/17, p.194

Burroughs Corp.:
Eppert: Machine sales tripling by '70, 12/31, p.9
Used computers, off list price, 7/23, p.11

C

CPC Engineering:
Welded steel door for nuclear powerplant, 10/29, p.40

Cadillac Associates Inc.:
Barton: Average executive replaced, 8/6, p.90

California Metal Trades Assn.:
Elects president, 11/26, p.35

Caloric Corp.:
Davidson: Against state tax returns, 7/2, p.23
Must file 1000th tax return, 8/20, p.26

Cambridge Wire Cloth Co.:
Metal mesh sling on large mill rolls, 8/13, p.31
Wire mesh belts on auto conveyor line, 9/17, p.35

Capitol Products Corp.:
Pipe turner handles eccentric loads, IE, 10/22, p.253
Read buys Davis Eng. and Tube Reducing, 7/2, p.27
Read machine rotates pipe for welding, cutting, IE, 9/24, p.155

Capitol Steel Corp.:
Buys Arbutus Steel, B, 9/10, p.35

Carborundum Co.:
Automatic deburring equipment, 12/3, p.84
Rodlike abrasive shapes better wheel performance (McMullen, Electro Minerals Div.), 10/29, p.39

Careers Inc.:
Recruiting center for engineers-scientists in Palo Alto, Calif., 8/13, p.28

Cargill Detroit Corp.:
Tool straightens heavy steel shafts, IE, 8/27, p.101

Caterpillar Tractor Co.:
Broaching efficiencies on steel forging, 10/29, p.40

C-E-I-R Inc.:
Management decisionmaking tech. called RAMPS, 8/6, p.29

Celanese Corp.:
Titanium used to corrosion proof equipment at new petro-chemical plant, 8/13, p.18

Centre Circuits Inc.:
Numerical control fits new, old machines, IE, 7/16, p.92

Cerro Copper & Brass Co.:
Expands Bellefonte Wks., B, 12/3, p.33
Knisely: Pinpoints forging cost shortcuts, 7/2, p.65

Certanium Alloys & Research Co.:
Welding electrode resists corrosion, IE, 9/3, p.139

Chain Belt Co.:
Buys Thomas Flexible Coupling, B, 9/10, p.35
Woodland: Marketing vigor urged to rescue profits, 8/13, p.118

Chainveyor Corp.:
Table top conveyor moves pallets, IE, 10/8, p.129

Chance Vought: See Ling-Temco-Vought

Chase Brass & Copper Co.:
Moves offices to Cleveland, 8/13, p.33

CheMechanical Inc.:
Rubber bonded to metal, 7/2, p.70

Chemetron Corp.:
NCG to supply oxygen for Empire-Reeves plant, 10/15, p.33

Chemplate Corp.:
Licensed by GAT div., 7/23, p.28

Chem-Tec International:
Assembly tech. uses liquid sealant, 8/20, p.72

Cherry Electrical Products Corp.:
Spring generators, 10/1, p.39

Chromalloy Corp.:
Sintercast Div.: Ferro-Tic C, sintered amalpression, 10/8, p.68

Chrysler Corp.:
'63 sales pitch on styling (Engel), 8/27, p.81
Amplex: Bearings for cotton picking shipped to Des Moines, 8/6, p.94
Anderson: Planning plays key role in profits, 12/3, p.120
Briggs cites autodom's role in U. S. welfare, 8/20, p.125
Canadian plant builds instead of importing cars, 11/5, p.110
Changes names of divisions, B, 1/19, p.35
Corrosion treatment — chemical salts and fluorides added to anti-corrosion dips, 11/5, p.104
Defense sales, 7/9, p.39
Disc brakes for turbine car, 7/2, p.36
Infrared plus convection drying cuts paint curing time, L. A. plant, 10/22, p.162
Nichols (Dodge): Auto industry stimulant to economy, 11/19, p.17
Seeks surplus metalworking machines, 12/24, p.23
Townsend: Outlines overseas expansion plans, 8/20, p.28
Townsend: 1963 outlook, 12/31, p.9

Cincinnati Electrical Tool Co.:
Unit with abrasive wheel cuts metals, IE, 10/22, p.247

Cincinnati Gas & Electric Co.:
Jets to generate electricity in proposed standby plant, 8/20, p.29

Cincinnati Milling Machine Co.:
Elektrojet, electrical discharge, IE, 12/10, p.137
Electronic feelers speed regrinding of steel mill rolls, 8/20, p.68
Grinding refinement, feed technique, IE, 7/16, p.101
Machines for production, toolroom milling, Cinpak, Cinel and Cinova, 12/31, p.68
Numerical control (Acramatic system on a Hydrotel) shows sophistication plus, 11/26, p.95
Profiler mills three parts at a time, IE, 10/15, p.173
Rotary head on flame heating machine hardens bores, IE, 11/19, p.154
Surface heating, how to choose between induction, flame hardening, 12/17, p.90
Universal grinders designed for production, IE, 8/13, p.125
Wheel tilt aids grinding precision, 7/9, p.12

Cincinnati Shaper Co.:
Tough parts formed electrohydraulically, 10/29, p.89

Cincinnati Sub Zero Products:
Chamber treats metals at low temp., IE, 10/29, p.99

City Tool Corp.:
A new lesson managing people, 7/9, p.64

Clark Controller Co.:
Volt relays bases-packaged and color coded poles, IE, 12/24, p.74

Clark Equipment Co.:
Air floats heavy loads, 7/2, p.9
Fork trucks for outdoor jobs, IE, 10/22, p.240
Palletized loads moved on air cushion, IE, 12/17, p.169

Clay Engineering & Mfg. Co.:
Design in spring generator for electrical firm, 10/1, p.38

Cleveland Cliffs Iron Co.:
Operations of Michigan mines suspended, 12/31, p.38

Cleveland Electric Illuminating Co.:
Welded tubing used in circulation steam generator, 10/15, p.84

Cleveland Industries Inc.:
Screen segregators, IE, 10/22, p.249

Cleveland Instrument Co.:
Gage accuracy within 0.000001 in., IE, 12/3, p.141

Cleveland Standard Pattern Works Inc.:
Merges Cove Pattern Wks., 10/22, p.37

Clevite Corp.:
Japanese facility, automotive bearing company, 7/9, p.28

Climax Molybdenum Co.:
Reopens molybdenum mine, Colo., 11/12, p.18
Solid lube, wider uses, 7/30, p.26

Clyde Engineering & Mfg. Co. Inc.:
Screw driving unit, IE, 10/29, p.97

Colgate-Palmolive Co.:
Robot order filling (automatic, computer oriented warehouse), 10/1, p.40

Collins Machinery Corp.:
Cutoff saw for 12 in. pipe, shapes, IE, 10/1, p.92

Colonial Broach & Machine Co.:
Flexibility built into roll forming unit, IE, 7/9, p.85

Colorado Fuel & Iron Corp.:
Blast at Monarch Pass quarry loosens six month stone supply, 10/22, p.33
Blast furnace gas wet cleaned, 12/3, p.78
Contour lathe cuts 54 in. rolls, 9/17, p.127
Jumbo contour lathe at Pueblo plant cuts steel rolls, IE, 10/1, p.86

Colson Corp.:
Power units for hand trucks, IE, 9/24, p.156

Comalco Aluminium Ltd.:
New name, B, 9/10, p.35

Combustion Engineering Co.:
Electricwelded carbon steel tubing, 10/15, p.84

Como-Cast Corp.:
Cold mold casting machine for automaker, 10/22, p.33

Cone-Drive Gears: See Michigan Tool

Conner Spring Mfg. Co.:
Merges, B, 7/23, p.28

Conrad Equipment Co.:
Portable yard ramp, IE, 10/8, p.129

Consarc Corp.:
Formed, B, 8/13, p.33

Consolidated Aluminum Corp.:
Mill rolls sheets to 56 in. wide; complete reduction plant in Tenn., 8/13, p.33

Consolidated Foundries Mfg. Co.:
Advancing technology provides savings in investment casting, (alloys prove cost shavers), 7/16, p.80

Consolidated Machine Tool:
Tape control machine for Westinghouse, 9/17, p.18

Consolidated Mining & Smelting Co. of Canada Ltd.:
Forms company in India, B, 10/1, p.28

Continuous Metalcast Co. Inc.:
Agreement with Koppers-exclusive rights until 1966, continuous casting machines involving 30 patents, 12/3, p.29
Continuous casting machine for Atlas, 10/29, p.18
Markets in U. S. certain, 9/17, p.88

Controls Co. of America:
Moves corporate headquarters, B, 7/16, p.28

Cooper-Bessemer Corp.:
Electropneumatic control on engines, compressors, IE, 11/5, p.168

Cooper Weymouth Inc.:
Automatic centering reel for double coil speed presses, IE, 11/19, p.159

Coordinated Equipment Co.:
Integrates five divisions in one plant, 9/3, p.34

Copperweld Steel Co.:
D-H vacuum degasser, Aristoloy Div., 11/26, p.92
Ohio Seamless Tube: Electric welding operation (cover story), 10/1, p.35

Corning Glass Works:
Chemical treatment makes glass strong enough to bend, 10/22, p.164
Thin film products produced, 8/20, p.86

Cottrell Inc.:
Unit supplies dc for many uses, IE, 7/16, p.98

Crane Packing Co.:
Automatic lapping machine, IE, 10/15, p.178
Liquid sealer for gasket and pipe joints, IE, 8/27, p.106

Cross Co.:
Machines process pump housings, IE, 11/5, p.171
Pallet fixture solves machining problem-diecast frames, IE, 9/17, p.211

Crown Aluminum Industries Inc.:
Continuous casting line, aluminum for strip, 11/26, p.84

Crown Controls Corp.:
Drum rotator on lift truck, IE, 10/29, p.94

Crownflex Abrasive Wheel Mfg. Corp.:
Abrasive mops eliminate hand jobs, IE, 11/12, p.138

Crucible Steel Co. of America:
Automatic control operates hot strip mill, Midland Wks., 10/29, p.32

Cunningham Co., M. E.:
Number, letters stamped into slabs and plates, IE, 11/26, p.166

Curry Air Shear Corp.:
Air operated shear, IE, 9/24, p.155

Curtiss-Wright Corp.:
Cold draw extrusion process, 8/20, p.65
Maraging steels high strength, research lab tests, 7/30, p.81

Cutler-Hammer Inc.:
Buys Thayer Scale, B, 10/22, p.37

Cyclone Sandblast Equipment Co.:
Blast cabinet, IE, 12/3, p.146

Cyrol & Co., E. A.:
Stockholders union, potent force if organized, 7/30, p.40

D

Daimler-Benz A. G.:
Hitzinger: Will West Germany's auto exports fade?, 8/27, p.92

Dahlstrom Machine Works Inc.:
Sliding die cutoff press for roll forming, IE, 9/24, p.167

Danly Machine Specialties Inc.:
Quick die change press, IE, 11/5, p.168

Datex Corp.:
N/C bending machine, IE, 11/19, p.153

Davis & Thompson Co.:
Milling-centering unit, IE, 7/2, p.77

Deere & Co.:
Beating profits into plowshares: Hot impact forging-mechanized line, 10/1, p.45
Makes powdered metal bearings for Amplex, 8/6, p.94

DeLaval-Holroyd Inc.:
Right angle speed reducers mount on shafts, IE, 11/12, p.138

De Laval Turbine Inc.:
Changes name, 8/27, p.33
Forms Filtration Systems Div., 12/17, p.35

Delta Sonics Inc.:
Ultrasonic unit cleans large parts, IE, 7/30, p.71

Demag A. G.:
Giant machines swing slabs from table to furnace (built for Holland mill), 12/17, p.102

Dempsey Co., Joseph:
Buys plant of Youngstown Steel Car, 9/10, p.35

Dempster Bros.:
Scrap metal shear features guillotine blade, IE, 10/22, p.261

Denison Engineering: See American Brake Shoe

Detectron Inc.:
Thickness gage accurate, IE, 8/20, p.142

Detroit Broach & Machine Co.:
Automatic sequence aids broaching, IE, 7/16, p.99
Auto rocker levers broached (three parts at once), IE, 10/29, p.98

Detroit Hoist & Machine Co.:
Air hoists, safe for hazardous areas, IE, 7/2, p.78
Girder traveling cranes, new features, IE, 11/19, p.156

DeVilbiss Co.:
Electrostatic coating equipment, IE, 9/10, p.186

DeVlieg Machine Co.:
Cluster tools, one pass surface machining, 7/16, p.93
Spiramatic jibmill for Brunner, 11/19, p.83

Diamond Machine Tool Corp.:
Deep drawing press, IE, 10/15, p.179
Punch press design cuts down on height, IE, 8/27, p.106

Diamond Power Specialty Corp.:
TV cameras with cooling system, IE, 12/31, p.71

Die Products Inc.:
Deep throat clipper, IE, 9/24, p.159

Dillinger Huttenwerke:
Continuous casting report, 9/17, p.89 and 9/24, p.98

Dixon Sintaloy Inc.:
Powder metallurgy solves production problem (piston pumps), 7/23, p.10 and p.139

DoAll Co.:
Contour band machine Model 1612-O, IE, 7/2, p.72
Contour band machine Model 2618-A, IE, 7/16, p.91
Micro-Inch measuring microscope, IE, 8/13, p.132
Nonferrous cutoff saw, IE, 10/8, p.121
Surface grinder capability, IE, 11/26, p.159
Swivel table for surface grinders, IE, 8/27, p.108

Dodge Corp., F. W.:
Construction contracts in 1963 forecast, 10/15, p.29

Dodge Wire Corp.:
Buys Cable Design, B, 8/6, p.35

Doehler-Jarvis: See National Lead

Dominion Foundries & Steel Ltd.:
Buys National Steel Car, 8/6, p.33

Douglas Aircraft Corp.:
Fusion welder tape controlled, 9/24, p.149
Jacobs: Profit or peril in government contracts, 12/10, p.126
Labor settlement, 7/30, p.21

Dover Corp.:
Buys De-Sta-Co., B, 10/22, p.37

Dow Chemical Co.:
Sells Metal Div., 8/20, p.33

Dow Metal Products Co.:
Aluminum facilities expansion, Madison, 7/16, p.28

Drake Mfg. Corp.:
Gun drilling unit, IE, 10/22, p.251

Dravo Corp.:
Builds pickling line for McLouth, 12/3, p.33
Shaker ladle purifies foundry, merchant iron, 10/8, p.63
Vertical pickling (Austrian process), distribution rights, 9/24, p.19
Vertical pickling (tower), U. S., 1/1, p.48

Driver Co., Wilbur B.:
Adds hot rolling mill, N. J., 12/3, p.33

Ducommun Inc.:
Name change, B, 8/27, p.33

Dunham Tool Co. Inc.:
Vacuum chucks hold irregular shapes, IE, 10/22, p.242

Du Pont de Nemours & Co. Inc., E. I.:
Delrin pipe (acetal resin) for oil field use, 7/2, p.69
Ellis before Congressional hearings, 8/13, p.25
Extrudes D-31, supertough alloy, 7/30, p.12
Nickel-thorium oxide process gives metals high temperature strength, 8/6, p.76
Polyamide resins, new high heat resistance, 12/10, p.83
Protective film, Tedlar PVF, IE, 12/3, p.138

Dyna Systems Inc.:
Drill breakage control, IE, 11/19, p.158

Dynascan Corp.:
Digital voltmeter designed for production, IE, 9/3, p.136
Radio controlled crane-belt transmitter, IE, 12/24, p.73

E

ETC Inc.:
Slanted press, high visibility, IE, 9/24, p.162

Eastern Products Corp.:
Precoats sheet steel for Bethlehem (Baltimore plant), 11/26, p.86

Eastern Stainless Steel Corp.:
Licensed for pressure pouring, 8/6, p.33

Eastman Kodak Co.:
Laser rods made from rare element glass, IE, 10/29, p.96

Eaton Mfg. Co.:
Dynamatic Ajusto-Gear Drive, IE, 11/19, p.156

Eclipse Div.: See Bendix Corp.

Edgcomb Steel of New England Inc.:
Revise price schedules, 12/10, p.100

Efficient Industries Corp.:
Name change, B, 11/19, p.35

Egan & Co., Frank W.:
Scrap cutter, IE, 7/2, p.72

Electric Autolite Co.:
Forms Prestolite Div., B, 10/15, p.35
Wistert: New goals for bluecollar workers, 11/5, p.83

Electric Products Co.:
Buys dc motors and generators, B, 12/31, p.19
Motor generator set skid mounted, fully enclosed, 7/23, p.146

Electro-Arc Mfg. Co.:
Machine coats metals for wear protection, IE, 7/30, p.75

Electron Beam Devices Corp.:
Unit controls motorized fixtures, IE, 9/10, p.179

Electron Beam Techniques Inc.:
Operators weld larger assemblies, 8/20, p.31

Elliott Co.:
Expansion program, B, 9/24, p.35

Elox Corp.:
Electron drill removes broken tools, IE, 10/29, p.95

Elwell-Parker Electric Co.:
Coil stock space saver with compact ram truck, 9/24, p.106
Lift truck for heavy die storage, IE, 12/3, p.129

Emerson Electric Mfg. Co.:
Ampere welder feature heat selection revamp, IE, 12/3, p.139
Davis (cover): New goals for cost cutters, 7/16, p.71
Repp: What's wrong with education, 7/9, p.46

Emertron Inc.:
Trantham Jr.: Military markets, 9/10, p.170

Empire-Reeves Steel Co.:
Enlarges hot strip rolling mill, B, 8/6, p.35
Equips open hearths at Mansfield with oxygen-natural gas roof burners, 10/15, p.33

Empire Varnish Co.:
Fire safety stressed on water emulsion enamel, IE, 12/3, p.135

Enamelstrip Corp.:
Laminating process, vinyl film on zinc, 8/27, p.31

Energy Conversion Systems Corp.:
Miniature direct drive motor, 12/31, p.18

Engelhard Industries Inc.:
Price fixing indictment, 7/2, p.104

Erickson Tool Co.:
Big precision indexer with horizontal spindle, IE, 10/29, p.98
Quick change toolholders, IE, 11/26, p.167

Erie Forge & Steel Corp.:
1st job pays for radiation scanner, 7/16, p.79

Erie Foundry Co.:
Carbon extrusion press, IE, 11/5, p.171
Forging press design simplifies accumulators, IE, 10/22, p.239

Eriez Mfg. Co.:
Electromagnets carry 70,000 lb loads, IE, 8/13, p.126

Everett Industries Inc.:
Cutoff saw, IE, 10/29, p.96

Ex-Cell-O Corp.:
Contour projectors, IE, 11/26, p.160 and 12/10, p.134
Electrochemical drilling unit, IE, 9/3, p.135
Electrolytic grinders, IE, 10/22, p.245
N/C borer, programed tool sizing, IE, 11/19, p.156
Special setup uses standard components, IE, 7/16, p.99
Three axis milling machine, IE, 11/12, p.131
Transfer machine bores piston products, IE, 12/3, p.135

Exomet Inc.:
Exothermic products dev., benefits cited, IE, 10/8, p.122

Extended Surface Tube Co. Ltd.:
Fins add strength to heat exchanger tubes, 8/20, p.87

F

Fafnir Bearing Co.:
Automatic grinding for finishing inner ring ball races, 11/26, p.83
Light bearing can be lubricated, IE, 10/15, p.174

Falconbridge Nickel Mines Ltd.:
Stockpiling committee check, 11/19, p.19

Fannon Products Div.: See Hupp

Fansteel Metallurgical Corp.:
Forms refractory metals firm, Belgium, 9/10, p.35

Fawick Corp.:
Turning and boring unit turns out Airlex clutches, 7/30, p.71

Federal-Mogul-Bower Bearings Inc.:
Bearing plant, Greensburg, Ind.: Machine operator training program, 12/31, p.18

Federal-Warco: See McKay Machine

Feedall Inc.:
Automatic feeder-heavy metal slugs, IE, 11/21, p.166

Feedmatic-Detroit Inc.:
Vibratory feeders, IE, 8/13, p.128

Feller Engineering Co.:
Schloemann extrusion press cheaper than German, 8/27, p.17

Fellows Gear Shaper Co.:
Automatic check-tooth index accuracy of gears, 7/23, p.142

Fenn Mfg. Co.:
Bull blocks made from weldments, IE, 10/29, p.96
Danish AEC installs rolling mill, IE, 8/27, p.106

Ferguson Co., H. K.:
Agreement with Concast for continuous casting machines negated; only working arrangement for engineering work, 12/3, p.29

Ferguson Machine Co.:
Camatic basic transfer machine, IE, 8/6, p.159
Table actuates automatic tooling, IE, 9/24, p.155

Firth Sterling Inc.:
Carbide Div. name change, 8/27, p.33
Cogging mill completed, Steel Div., 7/30, p.27
Induction furnace, McKeesport plant, pours, melts under vacuum, 10/8, p.35

Fitchburg Paper Co.:
Automatic computer at paper plant, 11/12, p.61

Flick-Reedy Corp.:
Bench presses to 7½ tons, 7/9, p.79
Huge cylinder, 1 million lb thrust, IE, 9/10, p.179
Hydraulic press power from shop air supply, IE, 9/10, p.185

Flinn & Dreffein Engineering Co.:
Annealing furnace features, IE, 10/1, p.95

Foote-Burt Co.:
Fillet rolling machine, single head, IE, 12/17, p.176
Transfer unit shapes cylinder blocks, IE, 10/8, p.122

Ford Motor Co.:
Aeronutronic-Army contract study on reliability in electronics, 11/26, p.140
Antismog device ok'd in California, 7/2, p.36
Consul Cortina, new international car, 10/15, p.156
Defense contracts, 7/9, p.39
Dykstra: Industry needs defense standby power, 12/24, p.68
Eggert: Two good sales years back-to-back, 9/24, p.17
German-Taunus, small car, 9/24, p.130 and p.138
Henry Ford: Stop telling people—ask what to expect from business, 10/8, p.17
Laboratory opens for fast test, 8/13, p.33
Minkel: Suggestion awards pay off, 11/26, p.150
Pretz: Urges automen overseas for growth, 9/10, p.160
Quality control program (cover-Sarnes), 11/12, p.57
Reid: Businessmen must grapple in political arena, 7/23, p.100
Scott (cover): New goals for product planning, 9/10, p.73
Tractor operations transferred to England, 12/3, p.33
UAW-Bannon: Targets worldwide unit of Ford workers, 10/1, p.68

Fordees Corp.:
50 ton press, IE, 10/22, p.245
Press-bar straightener, IE, 11/19, p.164

Forest City Foundries Co.:
Buys equipment of Exalco, B, 11/12, p.35

Fostoria Corp.:
Canned pumps handle heat transfer fluids, IE, 12/10, p.135

Fruehauf Trailer Co.:
Grace: Emphasis on container vans, 10/29, p.30

Fuji Bank Ltd.:
Takahashi: Japan seeks joint venture deals, 10/8, p.29

Furnco Construction Corp.:
Organized, B, 9/10, p.33

G

Gabriel Co.:
New plant, Tenn., 7/2, p.28

Gallmeyer & Livingstone:
Automatic compensator for wheel dressing, IE, 12/31, p.69

Gardner-Denver Co.:
Rotary vane air motors, IE, 12/17, p.172

Gaynes Engineering Co.:
Medium frequency for vibration testing, IE, 7/16, p.101

General American Transportation Corp.:
Buys AMF Mechanic Research Div., 9/24, p.35
Gas fired annealing furnace handles two huge tanks, IE, 10/1, p.95
Reorganizes Plate & Welding Div., 11/19, p.33

General Binding Corp.:
Lane: Too much sent abroad, 8/20, p.125

General Dynamics Corp.:
Airplane contract, Army-Navy, 12/3, p.28
Audio-visual (color slides) speed employee proficiency, 7/30, p.25
Automated assembly line for 'instant' airfields (welding-bonding equipment), 7/16, p.28
Cleanroom (laminar flow) for space age operations, 12/3, p.33
Convair: Heat lamp tests missile parts, 10/1, p.28
Dynapak press in action (cover pic), 8/6, p.64
Liquid Carbonic plant to make ultrapure hydrogen, 9/17, p.128
Portable quartz lamps ease titanium forming, 8/20, p.84

General Electric Co.:
Automated gage controls roll slabs into continuous strip, 7/9, p.12
Balance recorder, compact design, IE, 12/24, p.75
Compactness in ac motor line, IE, 7/9, p.83
Console permits one man to operate a complete mill, IE, 10/8, p.121
Diffusion bonding, GE-Metallurgical Dept., service (pic) hydraulic distributor plate-jet engines, 8/6, p.85
Electrolytic machines and techniques new, 8/13, p.20
Electronic instruments and controllers, new line, 8/13, p.74
Forms Large Generator & Motor Dept., 9/3, p.34
HERForming: Test outdoor gear at high voltage lab, 8/6, p.64
McCune: New goals for engineering, 7/2, p.53
McKitterick: Marketing's role, AMA speech, 7/2, p.25
Molybdenum sheets rolled in three grades, 10/29, p.48
Orbiting telescope at stars, satellite control system test, 8/13, p.19
Pedipulator, manned walking vehicle, studied by Ordnance Dept., 7/30, p.11
Performance featured on dc motors, generator, IE, 9/17, p.205
Programed tech. CPM to design and build computers, 11/19, p.74
Programing aids to APT III computer, 9/17, p.33
Quality control test and inspection machinery: Cover shows transistor tester, 9/24, p.85
Radiant heat from hot metal strips detected by new device, 7/16, p.23
Remote reading of mill roll openings (Selsyn device), 8/6, p.31
Rotary surface grinder for big pieces, 12/10, p.94
Silicone dielectric coating, 10/15, p.93
Silicon rectifiers for electric locomotives, 8/6, p.20
Solid state power supply (Silicomatic) cited for metal rolling, 8/20, p.85
Spacecraft stabilized by fluid flywheels, 11/26, p.17
Strickland Jr.: Fears automation systems purchased by offshore producers, 7/16, p.58
Tensiometers for strip mills, IE, 10/22, p.250
Thinline motors, IE, 7/2, p.78
Vinson: Beware the 'sloping sixties' (foreign competition), 10/29, p.81
Welds on power transformers, pic., 11/26, p.35

General Kinematics Corp.:
Conveyor handles up to 100 tons per hour, IE, 10/22, p.242
Vibrating feeders move materials, IE, 8/27, p.102

General Magnaplate Corp.:
Advantages cited for liquid, grease lubricants, IE, 8/27, p.106

General Motors Corp.:
1963 sales predicted, 8/27, p.17
Aluminum diecasting facilities enlarged, 7/2, p.36
Buick's Riviera, other '63 styling, 9/17, p.184
Cadillac's cast crankshafts, 11/5, p.146
Chevrolet's experimental marine engines, 7/9, p.11
Chevrolet flexibility concept—variety of engines on same line, 12/10, p.115
Defense contracts, 7/9, p.39
Donner: Free world prosperity from 'new capitalism', 10/8, p.18
Donner: What international activities do for U. S. export trade, 10/29, p.81
Ferritic parts making, new process, 10/8, p.31
Lehman: Sales lost in communications failure, 11/5, p.17
Opel A. G. (Germany) 'debugged' equipment, 8/13, p.71
Spray washed diecast parts (before plating) at Olds, 10/15, p.93
Sprayed vinyl coatings on some interiors, 10/29, p.70
Staley: Auto production record, 10/1, p.13
Ternstedt shows advances, 7/2, p.24
Ternstedt, door lock assemblies, 9/10, p.77 and 12/17, p.150
Tilt wheel steering emerging, 10/8, p.95
Unit bodies dropped in 1964? 8/20, p.113

General Precision Inc.:
Librascope digital interval timer, IE, 9/24, p.162

General Signal Corp.:
Merger, 10/22, p.37

General Steel Industries Inc.:
Buys Ludlow-Saylor, B, 8/13, p.35
Fire hazard (slow leak) cut by hydraulic fluid, 11/19, p.86

Gerber Scientific Instrument Co.:
Plotting system scores accuracy, speed, 12/3, p.129

Giddings & Lewis Machine Tool Co.:
Numerical control on equipment (cover), 12/10
Variable-stroke contouring mill eliminates two milling operations, 7/16, p.75
Vertical turret lathes for tape control, IE, 7/16, p.91

Gisholt Machine Co.:
Transistorized balancers check parts, IE, 10/8, p.126

Glidden Co.:
Supreme Court decision on re-employment case, 11/12, p.31

Globe Co.:
Ex-employees awarded NLRB settlement in layoff after plant move, 11/26, p.18

Globe-Wernicke Industries Inc.:
Buys Dray Mfg., 7/2, p.28

Goodrich Chemical Co., B. F.:
Madigan: Computer control a success, 11/5, p.20

Goodyear Tire & Rubber Co.:
Precision rims for cast wheels, 9/10, p.100
Tires reinforced with steel wire, 7/9, p.24

Gould-National Batteries Inc.:
Builds factory, Orlando, Fla., 11/19, p.35
Buys lead smelting facilities, B, 12/31, p.19
Chargers, static inverters, IE, 9/24, p.158

Graham Transmissions Inc.:
Helical reducers integral with variable speed drive, IE, 7/30, p.72
Racing up on variable speed drives, IE, 8/20, p.143
Remote electrical control for speed drives, IE, 12/17, p.171

Granite City Steel Co.:
Annealing furnace, fast cooling, 12/17, p.88

Gray Co., C. A.:
Vertical boring-turning mill machines rocket-missile casings, 10/22, p.163

Great Lakes Steel Corp.:
Berdis president, 7/16, p.27
Buys outsize scrap charger, pic., 8/6, p.35
Digital computers to run oxygen furnace, 10/8, p.20
Oxygen facility at Ecorse, 8/20, p.90

Green Fire Brick Co., A. P.:
Building clay calcining plant, 7/30, p.28

Greenerd Arbor Press Co.:
Hydraulic expanding and sizing machine, IE, 10/22, p.251

Gregory Galvanizing & Metal Processing Co.:
Extra long galvanizing kettle, pic., 12/10, p.83

Gregory Industries Inc.:
Breech loading aids powder actuated tool, IE, 8/20, p.140
Gregory: Overseas licensing benefits, 10/1, p.78
Nelson Stud Welding: Cost savings on nozzle installation (orchard sprayers), 9/10, p.77
Nelson powder actuated tool, IE, 7/2, p.72
Unit welds studs consistently strong, IE, 8/20, p.145

Gripall Corp.:
Material lifting machines, built-in scales, IE, 12/24, p.75

Grumman Aircraft Engineering Corp.:
Airplane contract for AF and Navy, 12/3, p.28

Guild Metal Joining Equipment Co.:
Shear-end welder takes strip 50 in. wide, IE, 11/12, p.132

H

H&H Engineering Co.:
Matched sets of tooling for tube benders, IE, 10/22, p.24

Hall Fuel Ltd.:
Home grown team can run check on overhead, 7/9, p.62

Halden Machine Co.:
Flying shears cut to wide strips, IE, 9/24, p.150

Hamilton Die Cast Inc.:
Buys Whirlpool plant, B, 7/2, p.27

Hammond Machinery Builders Inc.:
Abrasive belt grinder, IE, 10/8, p.129

Handy & Harman:
Brazing rings-automatic setup, 12/17, p.81
Changes basis for silver pricing, 7/30, p.98
Price fixing indictment, 7/2, p.104

Hanna Engineering Works:
Giant shock absorbers stop 150 tons (pic), 12/3, p.78
Standard shock absorbers, IE, 7/30, p.70

Hansford Mfg. Corp.:
Die handler with open top platen, IE, 7/9, p.83

Hanson-Van Winkle-Munning Co.:
Superlume, new plating system without buffing, 7/9, p.67

Harig Mfg. Corp.:
Surface grinder improvements, IE, 8/20, p.146

Harlo Products Corp.:
Hydraulic drive-control, IE, 8/13, p.125

Harnischfeger Corp.:
Gas or diesel engines drive skid or trailer-mounted constant voltage welder, IE, 10/15, p.177
Salditt: American business in South America tax free, prevent spread of Communism, 11/26, p.150
Semiautomatic welder, Mig package, IE, 9/10, p.185

Harrington Paint Co. Inc.:
Paint minimizes application troubles, IE, 11/19, p.158

Harper Co., H. M.:
Cold drawing extrusion press, Ugine-Sejournet process, 8/20, p.65
Expansions, B, 11/19, p.35

Harris Mfg. Co.:
Chilling machines, IE, 10/22, p.251; 12/3, p.132

Hartford Special Machinery Co.:
Thread roller takes 4 in. blanks, IE, 10/1, p.86

Harvard Aluminum Inc.:
New treatment improves aluminum properties, 10/15, p.112

Harvey Aluminum Inc.:
Aluminum alloy dev., 10/29, p.54
Aluminum shapes, extruded-cold drawn, 8/20, p.85
Building Kentucky rolling mill, 11/12, p.28
Cuts price for titanium tube and pipe, 8/13, p.92

Harvey Hubbell Inc.:
Subminiature cold heading-screws, 9/10, p.78

Hayes Inc., C. I.:
Molybdenum elements on diffusion furnaces, IE, 9/24, p.168
Vacuum furnace, hydrogen generator dev., IE, 10/8, p.124

Haynes Stellite Co.:
High alloy reactor vessel 'hat', 7/30, p.24

Head Wrightson & Co. Ltd.:
Manufactures Hover Pully (air cushion), 8/6, p.72

Heald Machine Co.:
Crossaxis grinding tech. upgrades OD, ID, 10/1, p.39
Kits of spare parts sold to customers as "downtime insurance plan", 12/17, p.31
Special cutting tool turns out Rambler clutch and converter housings, IE, 7/30, p.71

Heath Engineering Co.:
Speed range of flame cutting machine, IE, 10/15, p.181

Hektor Scientific Co.:
Filtration system for ultrasonic cleaner, 8/13, p.33

Heller Industries Inc.:
Automatic wire forming machine, IE, 7/30, p.73

Henschel Werke A.G.:
Goergen: Economy can be talked to death, 9/3, p.128

Heppenstall Co.:
Licensed for stream degassing, 8/6, p.71
Rotating hooks for safer handling, 10/29, p.41

Herr Equipment Corp.:
English affiliate (AEI-Herr) builds strip finishing lines for Italian firm, 10/22, p.168

Hevi-Duty Electric:
Materials engineer, symposium, 9/17, p.20

Hevi-Duty Heating Equipment:
Crucible type furnace helpful to aluminum foundries, 10/22, p.168

Hewitt-Robins Inc.:
Blending system (iron ore uniformity) for Kaiser, 12/17, p.86
India plant-interests, 9/24, p.33
India-conveyor line for iron ore down mountain, 10/1, p.44
Wire conveyor belt for drying oven (fasteners), 7/9, p.28

Hexcel Products Inc.:
Diffusion bonding, 12/24, p.16

Hill Acme Co.:
Abrasive products for polishing steel, 7/9, p.12

Hill Inc., Walter P.:
Numerically controlled drills, IE, 10/15, p.173

Hitchiner Mfg. Co. Inc.:
Buys Delta Microwave, B, 9/24, p.35
Investment castings, application potential, 11/19, p.84

Hobart Bros. Co.:
Arc spotwelding unit sales, 7/23, p.120
Pressured flux system, arcweld gun, IE, 11/19, p.163
Rectifier Mig welder, portable, IE, 8/6, p.161

Hobbs Mfg. Co.:
Accurate tension control on hydraulic winder, IE, 8/6, p.157

Hofors Central Swedish Steelworks:
Automated seamless mill, tubing for bearings, 9/10, p.84

Hooker Chemical Corp.:
Parker rust resistance compound, IE, 9/3, p.137

Houghton & Co., E. F.:
Hydraulic fluid cuts fire hazard, 11/19, p.86
Rust remover, IE, 12/17, p.170
Spray controls static electricity, IE, 8/20, p.140
Water soluble cutting fluid, IE, 9/24, p.166

Howe Precision Products Co.:
Electric Wire a div., B, 9/10, p.35

Howe Sound Co.:
French (Pechiney) seeks company stock, 10/29, p.77

Howe Sound Copper & Brass Div.:
Hunter: How to beat foreign competition, 10/22, p.155

Howell Electric Motors Co.:
Brake, gear motors, fractional hp, IE, 8/27, p.101

Hoyt Wire Cloth Co.:
Sold, B, 9/10, p.35

Hudson Machine & Tool Corp.:
Fin fabricator made for two presses, IE, 8/6, p.163

Hughes Aircraft Corp.:
Lasers aimed at production role (cover story), 10/29, p.35
Technique simplifies circuit tracing, 9/24, p.33
Traveling wave amplier tube, higher frequencies, 9/24, p.20

Hunt & Co. Inc., W. G.:
E-for-Export Award, (one-man business), 7/9, p.27

Hupp Corp.:
Fannon builds infrared-convection heaters for Chrysler, 10/22, p.162
Infrared painting-drying gas oven, 12/3, p.82
Petrone: Price determination, out of management's hands? 9/17, p.17

Hysol Corp.:
Epoxy adhesive cures at room temp., IE, 12/24, p.76

Hyster Co.:
Lift truck hoists big loads, IE, 11/19, p.155
SpaceSaver lift truck for narrow aisles, IE, 12/17, p.178

I

I-F Mfg. Co.:
Induction furnaces efficiency, 12/17, p.80

Ilikon Corp.:
Blowing method makes seamless aluminum cans, 10/15, p.33

Imperial Industries Inc.:
Plating barrel, little maintenance, IE, 7/9, p.84

Indiana General Corp.:
Deep field lifting magnets, IE, 12/10, p.137
Magnetic separator design, IE, 12/3, p.132
Mill magnet lifts coils, IE, 11/26, p.165

Indiana Steel Products Co. of Canada Ltd.:
Induction melting furnace at foundry, 12/31, p.28

Inductotherm Corp.:
Induction power sources, IE, 9/24, p.152

Inductotherm Linemelt Corp.:
Induction furnace for tough pitch copper, IE, 11/12, p.135

Industrial Tectonics Inc.:
Buys Continental Bearing Research, 9/24, p.35
Forms Research & Dev. Div., 10/15, p.35

Infra Red Systems Inc.:
Electric infrared oven, IE, 8/13, p.132

Ingersoll Milling Machine Co.:
Lines 'debugged' before shipment to Germany, 8/13, p.71

Ingersoll-Rand Co.:
Buys Millers Falls, B, 8/6, p.33

Ingot Mold Methods Corp.:
Immcor casting process slashes ingot mold cost, 7/9, p.73

Inland Steel Co.:
Aluminum coated sheets (uses), first shipment, 10/29, p.54
Block: Industry needs understanding, 9/3, p.17
Block: Need for labor-management co-op, 8/13, p.82
Block: Steel outlook mildly optimistic, 12/10, p.17
Expands thin tin plate facilities, 12/31, p.40
Free machining, lead bearing steels, 10/15, p.109
Hot strip mill doubles capacity, 7/16, p.28
Orders electrical equipment for strip mill, 10/8, p.33
Quality control center, Indiana Harbor Wks., 11/19, p.33

Inland Steel Products Co.:
Buys radiant acoustic ceiling business of Burgess-Manning, 11/12, p.35

Instrument Development Laboratories Inc.:
Colorimeter, IE, 10/1, p.89

Interlake Iron Corp.:
Modernized Chicago plant, casting machine, etc., 9/3, p.33

International Business Machines Corp.:
Computer for small firms, IE, 10/29, p.89
Dr. Piore warns to 'keep pace', 10/22, p.29
Machine positions, welds parts automatically, IE, 9/17, p.206

International Harvester Co.:
Adopts method for hardening journal areas of crankshaft, 11/12, p.33
Oxygen units replace open hearths at Wisconsin Wks., 10/8, p.72
Tape controlled engine block line, 10/29, p.30

International Nickel Co. Inc.:
Huntington Div., installs reversing mill and forging press, 7/16, p.28

International Nickel Co. of Canada Ltd.:
Grate bar on pelletizing line, pic., 9/10, p.86

International Pipe & Ceramics Corp.:
Merger, B, 10/22, p.37

International Research & Development Corp.:
Dynamic balancing machine and computing system, IE, 11/19, p.154

International Ultrasonics Inc.:
Ultrasonic generator range expanded, IE, 8/20, p.147

Ipsen Industries Inc.:
Automatic tunnel kilns, IE, 9/17, p.213
Vacuum furnace heat treats tiny parts, IE, 8/27, p.107
Vacuum furnace heat treats titanium, IE, 7/2, p.72

Iron Ore of Canada:
Automatic train hauls ore from mine to crusher, 9/3, p.31

Irwin-Sensenich Corp.:
Track mounted car for intraplant loads, IE, 7/9, p.76

J

Johansson Gage Co.:
Comparator checks thin films, foils, IE, 11/5, p.167

Johnson-Flaherty Inc.:
Pallets for coiled products, IE, 10/15, p.178

Johnson-March Corp.:
Buys Triangle Equipment, B, 11/12, p.35

Jones & Lamson Co.:
Optical gaging, pic., 12/31, p.22

Jones & Laughlin Steel Corp.:
Adams: Steelmakers firm against wage increases, 12/24, p.13
Module concept (add-on furnace) pays off on bar annealing line, Stainless & Strip Div., 10/1, p.46
Moore: Market researcher predicts steel growth, 10/29, p.17
New tandem mill (Aliquippa) rolls light gage tin plate, 12/24, p.34
Oxygen steelmaking studied in miniature furnace, 9/10, p.31
Pipes coated in fluidized bed, 11/5, p.20
Plastic pipe for underground systems, 10/15, p.102
Precision grinder for cold finished bars, 11/19, p.18
Punched card controls system, 9/17, p.93
Self-fluxing iron ore pellets test, Aliquippa blast furnaces, 7/2, p.26
Supermachining steels (selenium-leaded) developed, 8/13, p.33

K

Kaiser Co., Henry J.:
Oxygen process forecast for alloy and stainless production, 10/8, p.72

Kaiser Aluminum & Chemical Corp.:
Aids users (program) in defense markets, contracts, 12/17, p.27
All-aluminum spheres for liquid hydrogen, 7/9, p.12
Aluminum ingot price cut (down to world level), 12/10, p.27
Cable for transmission lines produced, 8/20, p.71
"Jumbo" coils save time, 7/23, p.136

Kaiser Steel Corp.:
Capacity vs consumption, 10/8, p.27
Capacity vs consumption (prompted by price cuts), 10/22, p.26
Capital spending, equipment-facilities, 8/13, p.19 and 9/3, p.34
Contracts with Bliss for mill equipment, 11/26, p.35
Giant blending plant levels ore variations (new storage and blending system), 12/17, p.86
Labor pact, 7/2, p.26
Labor-management-progress sharing plan nears accord, 8/13, p.27
Labor-management submits progress sharing plan, 12/24, p.21
Press (5000 ton) forms 6 in. plates, 8/27, p.56
Price cut to meet competition from Japan, 10/8, p.26
Price reverberations continue; other steel firms watched for possible moves, 10/15, p.25
Study: West's finished steel consumption, 9/10, p.28

Kawasaki Steel Corp.:
Recipient of money credit, Export-Import Bank, 11/5, p.15

Kawneer Co.:
Merges, B, 9/17, p.33

Kearney & Trecker Corp.:
Low cost financing plan (Cash Flo), 12/10, p.26
Small lots machined on special mill, 8/20, p.140
Versatile head milling machine, IE, 8/27, p.99

Kelley Mfg. Co.:
Buys barrel firm, B, 9/10, p.35

Kellogg Co., M. W.:
Data gives capital expenditure needed for steel plant abroad, 8/6, p.88

Kennametal Inc.:
Carbide inserts help chuck grip, 10/29, p.41

Kennecott Copper Corp.:
Labor pact signed, 7/16, p.132
Production curtailment, 9/10, p.27

Keystone Steel & Wire Co.:
Automated billet testing, 7/16, p.88

Kidde & Co. Inc., Walter:
Gearbox for zero gravity, IE, 10/15, p.181

Klaff & Co. Inc., H.:
Buys Weiskittel, B, 12/17, p.35

Knapp Mills Inc.:
Testing system records radiation shield quality, 7/2, p.68

Kocks Pittsburgh Corp.:
Debates to import or build here, 10/8, p.104

Koehring Co.:
HPM Div. cold chamber diecasting machine, IE, 10/29, p.96

Koffel Industrial Products Co.:
Nylon bushings cast on shafts, 12/17, p.81

Kolcast Industries:
Semicontinuous vacuum casting line debuts, 10/15, p.31

Kollmorgen Corp.:
Periscope helps in furnace fettling, 9/17, p.98

Koppers Co.:
Agreement with Continuous Metalcast (owned by Concast, Zurich) for exclusive rights until 1966 (continuous casting machines), 12/3, p.29
Coal injection system for Weirton, 8/6, p.86
Coal feeder, new system for direct injection into blast furnace, 10/1, p.27
Continuous casting machine-model, 9/17, p.91
Contracts for Bethlehem tar distillation plant modernization, 8/13, p.91
Pulverized coal trims blast furnace costs, 10/15, p.27
Tunstead: Winning Latin friends through Alliance for Progress? 10/8, p.106

Kozma Co., J. A.:
Atmosphere furnace heat treats, quenches, IE, 10/8, p.127

Kropp Forge Co.:
Rings for Polaris launching tubes, 8/6, p.87

Kubar Inc.:
Filter system teams up with ultrasonic cleaning, 8/13, p.31

L

L&R Mfg. Co.:
Portable console-ultrasonic cleaner, IE, 12/31, p.70

Lafayette Grinding Corp.:
Precision grinding large, irregular shapes in job shop (Thompson surface grinder), 11/19, p.91

Lamb Co., F. Jos.:
Transfer unit assembles auto cylinder heads, IE, 10/15, p.182

Lamb Electric:
Small motor features, 12/3, p.18

Lamb Industries Inc.:
Buys TM Mfg. Co., 7/9, p.28

Lamson & Sessions Co.:
Conveyor belt-parallel for drying fastener parts, 7/9, p.28

Lamtex Industries Inc.:
Solid propellent motor case from filament wound, reinforced plastics, 7/9, p.25

Landis Machine Co.:
Low cost threading machines, IE, 12/3, p.135

Latrobe Steel Co.:
How to reduce failure of thread rolling dies: Peter Leckie-Ewing, 7/2, p.66
King sized billets for missile castings, 7/9, p.70

Lear Siegler Inc.:
Aerospace Dev. Center, Mich., 11/19, p.35
Buys Trion Instruments, B, 10/8, p.33
Forms Defense Systems Operations, 12/17, p.35
Forms Power Equipment Div., 7/9, p.28

LeBlond Machine Tool Co., R. K.:
Lathes, smooth sensitive operation, IE, 7/30, p.69

Lee Associates:
Claims ICC model for socialism, 9/3, p.128

Leeds & Northrup Co.:
Accuracy on furnace, instrumentation, IE, 10/22, p.260
Forms Italian subsidiary, 10/1, p.28
Forms new departments, B, 7/9, p.28
Instrumentation aids iron, steelmaking, 9/17, p.131
Monitor senses furnace heat, 10/8, p.68
Throwaway thermocouples, 10/29, p.20

Lees-Bradner Co.:
Hobber can generate gears up to 18 in. diameter, IE, 11/26, p.159
Hobber improvements, IE, 8/20, p.139
Machine tool packaging, 8/20, p.73

Leicester, Lovell & Co. Ltd.:
Plastic replace tool, 8/13, p.74

Lempco Industrial Inc.:
Platen die tryout press, IE, 12/17, p.177

Lenape Hydraulic Pressing & Forging Co.:
Installs vertical turret lathe, ups production, 11/5, p.87

Lester Engineering Co.:
Big casting to be frame for die-casting machine, 8/27, p.31

Lewis-Shepard Products Inc.:
Stacking unit for bar, tube stock, IE, 11/12, p.135

Lewis Welding & Engineering Corp.:
Consolidates facilities, offices, B, 7/23, p.28
Gantry unit welds transformer plates, IE, 7/30, p.70

Libbey-Owens-Ford Glass Co.
Investment in Alside Inc., 11/12, p.18

Lift Trucks Inc.:
Stock pickling lift truck, IE, 12/10, p.134

Lima Electric Motor Co. Inc.:
Roll-on coatings to steel strip, new equipment, IE, 10/22, p.252

Lincoln Electric Co.:
Engine driven generator, Weldanpower, IE, 7/2, p.77

Linde Co.:
Aluminum containers to transport (via boat) plastic resins (worked with Budd Co. for gantry type framing fixture equipped with 14 arc spotwelders), 7/23, p.122
Enlarges air separation facilities, 9/3, p.33
Flame cutting, slices several lengths at once, 10/1, p.89
Plasmarc furnace: Foundries get space age furnace, 10/15, p.77
Portable heliarc unit welds stainless, IE, 8/6, p.156
Semiautomatic weld (Mig) design takes kinks out of use, 7/23, p.141

Ling-Temco-Vought Inc.:
Chance Vought: Concrete dies used to form aircraft panels, 11/19, p.31

Link-Belt Co.:
Conveyor moves heavy, abrasive materials, 8/20, p.142
Exposition display, IE, 9/24, p.166

Lionel Corp.:
Medaris: Challenges of space age to scientists and engineers, 8/6, p.17
Semitubular rivet permits easy assembly of trains, 7/16, p.76

Lipsett: See Oden Corp.

Littell Machine Co., F. J.:
Reels handle small, large coils, IE, 9/24, p.160

Litton Industries:
Buys Emertron, B, 12/17, p.35

Livernois Engineering Co.:
Blank loader, IE, 12/3, p.147

Locke Steel Chain Co.:
CO_2 welding up production of conveyor chain, 10/8, p.68

Lockformer Co.:
Roll forming lines — automatic from coil to cutoff, 10/8, p.127

Lockheed Aircraft Corp.:
Giant aluminum forging for jet cargo airplane, 11/5, p.33
Magnesium-lithium for space vehicles, 10/29, p.30
Small business-contract assist, 11/12, p.85

Lockheed Propulsion Co.:
High energy x-ray machine tests rocket motor, 8/20, p.18

Logan Co.:
Slit steel coil palletized and banded on power bed upender and turntable, IE, 7/16, p.103

Loma Machine Mfg. Co. Inc.:
Saw, rolling mill advantages, IE, 9/10, p.180

Lone Star Steel Co.:
Lays off at Germay Wks., 10/8, p.27

Lukens Steel Co.:
Consultation with suppliers on specifications-grinding wheels saves $50,000, 7/16, p.85
Huge plates readied for 'cold box', 8/20, p.35
Magnetic flowmetering cuts maintenance cost (processing waste water from rolling mills), 8/6, p.92
Plate steel LT-75 new for storage tanks, 10/22, p.28

Mc

MacDermid Inc.:
Buys Davies Supply, B, 9/10, p.35

McKay Machine Co.:
Federal-Warco spotwelder (dust shield), 10/22, p.167
Forming machines — automotive rim line, 9/10, p.35
Spotwelding dust shield to shock absorbers, IE, 11/12, p.134

McKinsey & Co. Inc.:
Executive pay, sales profits (chart), 10/15, p.28
Patton: Something to aim at to do your best, 10/1, p.78

McLouth Steel Corp.:
Adds hydrochloric acid pickling line, 11/26, p.35
Basic oxygen furnace lining lasts 388 heats, 8/13, p.76
Continuous casting contract, 10/22, p.17
Continuous casting machine, builder unknown, 12/3, p.29
Tower pickling line (Ruther process) ordered from Dravo, 12/3, p.33

McWane Cast Iron Pipe Co.:
Buys DeBardeleben Coal, 7/9, p.28

M

3M Co.: See Minnesota Mining

M-B Corp.:
Buys Ready-Power, B, 9/17, p.33

M-H Standard Corp.:
Armorbelt conveyors, IE, 10/29, p.99 and 12/24, p.74

M & M Tool & Mfg. Co.:
Unit grinds dies, gages, other parts, IE, 9/24, p.159

Magnaflux Corp.:
Billet tester for Keystone Steel, 7/16, p.88
Migel: How we'll measure tomorrow (electronic probe) cover pic., 12/31, p.20
Testing equipment, IE, 10/1, p.85
Unit detects surface, subsurface cracks, IE, 9/10, p.177

Magnesium Aerospace Products Inc.:
Formed, merger with Dow Chemical Div., 8/20, p.33
Buys Dow Metal plant, B, 9/10, p.33

Magnetics Inc.:
On-side hydrogen purifier, heat treat line, 11/12, p.65

Magnetool:
Chucks using permanent ceramic magnets, IE, 11/19, p.154

Magnus Chemical Co.:
Soluble oil for heavy cutting, IE, 12/31, p.72

Mallory & Co. Inc., P. R.:
Lab for basic research, Mass., 11/19, p.104

Mannesmann-Meer Inc.:
Builds exclusively for domestic market, 10/8, p.103
Dr. Overbeck replaces Winkhaus, 7/23, p.109

Mannesmann Tube Co.:
Sault plant: Linde flame cutting slices several bar lengths at once, IE, 10/1, p.89

Manning, Maxwell & Moore Inc.:
Buys All-State Eng., 12/17, p.35
Design minimizes crane stresses, IE, 8/13, p.130
Stacker cranes, IE, 12/3, p.136

Mansfield Brass & Aluminum Corp.:
Buys Aluminum Permanent Mold, 12/31, p.19

Maremont Corp.:
Buys two firms—rebuilders of automotive parts, 9/10, p.35

Marquardt Corp.:
Shear forming rocket and missile parts, 10/1, p.43

Martin Co.:
Computer centers link workload, Denver to Baltimore, 10/1, p.14
Nuclear fuel life predicted, 10/29, p.20
Thermoelectric generator rod generates own heat, 7/9, p.10

Martin Marietta Corp.:
Concrete dies show little promise in explosive forming, 8/27, p.61

Masten Bearing Sales Inc.:
Buys Twentieth Century Brass, 10/22, p.37

Master Mfg. Co. Inc.:
Master duplex mill, IE, 12/24, p.75

Master Power Corp.:
Pneumatic shear slices 16 gage steel, IE, 9/24, p.167

Mattison Machine Works:
Market development, abrasive machining, 11/5, p.19

Medford Metal Fabricators Co.:
One piece rule dies simplify blanking, 9/10, p.80

Meissner Engineers Inc.:
Computer frees engineers to think big, 12/10, p.71

Mercury Inc.:
Press brakes bend light steel, aluminum, 8/20, p.144

Mesta Machine Co.:
U. S. Steel contract for cold roll sheet mill, 8/27, p.33

Meta Mold Aluminum Co.:
Magnesium used for engine air shroud, 11/5, p.96

Metal & Thermit Corp.:
Insulation system gives burnout protection, IE, 11/12, p.138

Metal Improvement Co.:
Glass peening units, IE, 11/12, p.132
Japanese investment, 7/9, p.28

Metal Reclaiming Associates:
Machine reclaims zinc, aluminum, IE, 7/16, p.106

Metals & Controls Inc.:
Multilayer-decorative sheets (contrasting alloys), 11/26, p.20

Metallurgical International Inc.:
New materials: Pyrolytic graphite for crucibles, and columbium for electrical capacitors, TO, 10/1, p.16

Meyers ElectroCooling Products Inc.:
Thermoelectricity increases cutting tool life, 12/31, p.17

Michigan Oven Co.:
Buys Drying Systems Div. of Thor, 8/6, p.33

Michigan Tool Co.:
Forms Cousan Chemical, 7/9, p.28
Worm gear reducers, IE, 8/6, p.161

Micromatic Hone Corp.:
Expands, Calif., facilities, 8/20, p.33

Midvale-Heppenstall Co.:
50 ton vacuum melted ingot for research, 7/23, p.28

Miehle Co.:
Numerical controls at job shop for drills, means savings, 10/8, p.65

Miehle-Goss-Dexter Inc.:
Coultrap: Imports German presses —global enterprise, 12/31, p.62

Milford Rivet & Machine Co.:
Single spindle rivet setters, 7/16, p.76

Mills-Wolf Steel Co.:
Plasma cutting machine, 12/3, p.84

Mimik Tracers Inc.:
Feed control for use with lathe tracer, IE, 7/23, p.141

Mingo Oxygen Co.:
Expansion program, 11/5, p.19

Minneapolis-Honeywell Regulator Co.:
Carbide inserts help chuck grip, 10/29, p.41
Computer center opened, Pottstown, Pa., 12/10, p.33
Computer translates into German, microsecond memory, 9/17, p.18
Condensation controller, IE, 9/17, p.213

Finke: Electronic data difference-automation, 7/9, p.46
Lenox: Better inventory control practices needed, 10/8, p.31
Proximity switch detects small parts, IE, 12/10, p.141
Subminiature computer, space navigation guidance, 12/17, p.96

Minnesota Mining & Mfg. Co.:
Buetow: Critics of marketing taken to task, 10/8, p.106
Epoxy adhesive-strong bonds, IE, 12/31, p.71
Foam tape, IE, 12/3, p.143
Thermoelectric generators line new, 7/16, p.23

Minnotte Bros. Steel Corp.:
Buys Guibert Steel, B, 11/26, p.35

Molded Fiber Glass Body Co.:
Avanti assembly holdup, 9/17, p.184
Unionization barred, credits monthly profit sharing system: Morrison-president, 9/17, p.194
Would public pay a premium for fiber glass family car? (R. S. Morrison), 9/10, p.159

Monarch Machine Tool Co.:
Multipurpose lathe-economical, IE, 7/30, p.73

Monogram Precision Industries Inc.:
Buys Ana-Tec, B, 9/24, p.35

Monsanto Chemical Co.:
Young: Export advantages fade, 11/19, p.18

Moore Special Tool Co.:
Measuring machine, 24 x 48 in. range, IE, 7/2, p.71
Tailstock attachment-rotary table, IE, 10/15, p.175

Mor-Flo Industries Inc.:
Buys Sands Mfg., 8/6, p.33

Morgan Construction Co.:
Rolling tolerances tightened, 8/6, p.20

Morse Twist Drill Machine Co.:
Attitude surveys, insurance against employee difficulties, 7/23, p.124
Hayes: Geared to false economy, 7/9, p.9

Moslo Machinery Co.:
Injection molding machine, IE, 12/31, p.72

Motch & Merryweather Machinery Co.:
Turning and boring unit (with Fawick), IE, 7/30, p.71

Motec Industries Inc.:
Lift truck maneuverability, IE, 7/9, p.75

Motorola Communications & Electronics Inc.:
Macdonald: Midwest 'sterile desert' for electronics R&D, 7/16, p.58

Motorola Inc.:
Enters field of process controls (Teletrak), 9/10, p.95

Mullard Research Laboratories:
Tungsten carbide machining speeded with combined ultrasonicOelectrolytic tech.s, 8/20, p.86

My-T-Veyor Corp.:
Overhead cable conveyor, IE, 12/24, p.74

N

NTH Products Inc.:
Radioactive gage checks thickness, 11/12, p.20

National Acme Co.:
Shalco-Fordath mixer-slinger, IE, 9/17, p.206

National Broach & Machine Co.:
Deburring attachment on gear shaver, IE, 8/6, p.158; 8/27, p.102
Gear tooth honing machine, IE, 12/3, p.146

National Carbon Co.:
Ball and roller bearing cages of steel reinforced carbon graphite, IE, 9/10, p.178
Cold ramming paste for cupola lining repairs, IE, 12/17, p.173
Press to turn out monolithic graphite shapes, 7/30, p.28
Refractory metal composite defies molten aluminum attack on paper, plastic, sheet steel, 10/8, p.72

National Castings Co.:
Cushioning device for freight cars, 8/13, p.28

National Electric Welding Machines Co.:
Automatic welder for deposition of weld metal for large area buildup, 10/22, p.170

National Lead Co.:
Builds titanium pigment plant, Norway, 10/1, p.28
Doehler-Jarvis: Aluminum engine cylinder coating, 11/5, p.94
Martino: Need for research-development, 9/24, p.17

National Machinery Co.:
Wire drawer attachment, IE, 10/8, p.122

National Metal Abrasive Co.:
Borch: Pricing overhaul (self-made cost squeeze turns problems into profit), 11/26, p.88

National Research Corp.:
Ultrafine powders, dev., 12/24, p.16 and 12/10, p.19
Vacuum greater than outer space produced in space simulation chamber, 9/10, p.99
Vacuum oil diffusion pumps, IE, 12/31, p.69

National Steel Corp.:
Continuous casting studied, 10/15, p.17
Rumor that Schloemann would build continuous casting plant, 12/3, p.29

National Ultrasonic Corp.:
Vapor spray degreaser also cleans nonsolubles, IE, 9/17, p.210

Nelson Steel & Wire Co.:
Cold drawn steel bars, lube is gravity fed as they enter straightener, 8/20, p.72

New England Metallurgical Corp.:
Buys Porter Forge, B, 10/15, p.33

New Jersey Zinc Co.:
Annual award for: Basement window-zinc diecast, 9/17, p.121

Newton Co.:
Portable transmitter controls cranes (power pulse control), IE, 10/1, p.92

Newton-New Haven Co.:
Monitor senses furnace heat, 10/8, p.68

Niagara Machine & Tool Works:
Series M presses, IE, 12/3, p.142
Shears Series, IE, 12/10, p.133

Nilson Machine Co., A. H.:
Double ram press part of four slide, IE, 12/17, p.169
Straightener for wire with small diameters, IE, 11/19, p.158

Noble & Westbrook Mfg. Co.:
Machine marks round, flat workpieces, IE, 9/10, p.183

Nordbert Mfg. Co.:
Buys Wood's hydraulic press business, 9/24, p.35

Nordson Corp.:
Airless electrostatic spray-paint, IE, 7/16, p.93

North American Aviation Inc.:
Labor hassle, 7/30, p.21
Numerical controlled turret drill, savings on stainless machining, 10/8, p.69
Portable mill cutter trims rocket cylinders prior to welding, 12/31, p.12
Rocketdyne expansion, 9/10, p.35

Northwest Chemical Co.:
Diecasting quench, IE, 9/24, p.158

Norton Co.:
Announce price cut on grinders, 8/13, p.28
Grinder finishes medium sized work, IE, 8/20, p.139

Nuclear Metals Inc.:
Extrusion press aids aerospace material research, 11/19, p.35

Nuclear Material & Equipment Corp.:
Pellet inspection device, IE, 10/22, p.261

Nuclear Research Corp.:
Nuclear gage checks plate thickness, IE, 10/15, p.175

O

Oakite Products Inc.:
Rustripper PR, compound for electrocleaning cast iron parts, 7/9, p.69

Ogden Corp.:
Lipsett buys equipment of New Orleans aluminum foundry built by government, 12/3, p.35

Ohio Crankshaft Co.:
Hardening machine cuts axle distortion problem, 9/10, p.98
Improvements on motor-generator sets, IE, 11/5, p.168
Press-buttwelder joins pipe, tubing, IE, 10/1, p.91
Tocco gear scanner, IE, 10/29, p.90
Unit converts power for induction heating, IE, 9/24, p.157

Ohio Electric Mfg. Co.:
Magnetic-100 ton lift for steel plant, 7/30, p.61
Magnetic sand cleaner, IE, 7/16, p.106

Ohio Seamless Tube: See Copperweld

Ohio Steel Foundry Co.:
Installs large roll, B, 8/20, p.33

Ohmart Corp.:
O-frame beta gage measures sheet thickness, IE, 10/1, p.91
Radiation method weighs materials on conveyors, IE, 12/17, p.177

Oilgear Co.:
Controls for pumps, transmissions, IE, 11/19, p.159

Olin:
CPM used for projects, 11/19, p.77

Olin Foil Packaging Co.:
Fibre foil cans, new plant, 12/31, p.11

Oliver Machinery Co.:
Saw slices heavy steel plates, IE, 11/5, p.163

Olson Filtration Engineers:
Automatic coolant system, IE, 7/9, p.83
Filter cleans fluids, IE, 7/2, p.78

Ontario Research Foundation:
Jet smelting, pig iron from fine ore, 10/8, p.72

Opel A. G., Adam:
Lines 'debugged' before shipment, 8/13, p.71

Optical Gaging Products Inc.:
Digital readout attachment, projector attachment, IE, 12/31, p.69

Oregon Metallurgical Corp.:
330 lb seamless molybdenum ring, 11/19, p.20

Osborn Mfg. Co.:
Centerless machine finishes cylindrical parts, IE, 9/10, p.177

Otis Elevator Co.:
Defense Div. adds Calif. plant, B, 8/20, p.35

P

Pacific Industrial Mfg. Co.:
Billet breaker-automatic, 12/3, p.82
C-frame press does brake work, IE, 10/22, p.255
Tilting hydraulic press, IE, 10/22, p.240

Package Machinery Co.:
Reed-Prentice: Diecasting machines for aluminum, zinc, IE, 8/6, p.160

Packard-Bell Electronics Corp.:
Bell: Adequate profits needed in space age, 12/10, p.126

Pall Corp.:
Dr. Pall (cover): New goals for small company diversification, 8/27, p.41
Gas monitoring system protects against plant explosions, IE, 12/24, p.74

Pandjiris Weldment Co.:
Vacuum separator removes dust-dirt, cleans welding flux, IE, 9/3, p.141

Parker-Hannifin Corp.:
Forms German subsidiary, 7/9, p.28

Parker-Hartford Corp.:
Buys Eburn Industrial Research, 7/2, p.28

Parker Rust Proof: See Hooker Chemical

Parker Pen Co.:
Automatic assembly, 12/17, p.76

Pechiney Enterprises Inc.:
Seeks stock in Howe Sound, 10/29, p.77

Pedrick Tool & Machine Co.:
Bending machines, IE, 7/2, p.77

Pennsalt Chemicals Corp.:
Wire coating, Hinac, 10/22, p.169

Pennsylvania Engineering Corp.:
Oxygen furnace (L-D) contract, Ashland Wks., 12/3, p.35

Pereny Equipment Co.:
Electric tube furnace-versatility, IE, 12/10, p.138

Perforators Inc.:
Filters separate grinding oil, debris, 10/15, p.113

Permacel:
High temp tape insulates atom control, 11/12, p.70

Pfaudler Co.:
Fluidizing coats refractories, 10/29, p.20
Molybdenum coating research, 9/17, p.116
Refractory coatings protect refractory metals, 8/27, p.50
TW agitation drives for mixing vessels, IE, 8/6, p.161
Titanium vs. glass coatings, 7/2, p.70
Titanium lining for steel stack, 10/15, p.98

Phillips Mfg. Co.:
Solvent formulation aids degreasing, IE, 11/26, p.165

Photenetics Corp.:
Motor design for vacuum processing, IE, 8/20, p.146

Phoenix-Rheinrohr A. G.:
Mommsen: Site and war materials vital factors in steel, 7/23, p.100

Phoenix Steel Corp.:
Claymont plant new, steel plates, 9/17, p.33
Continuous casting study, 11/5, p.18

Picker X-Ray Corp.:
Radiation scanner for castings, 7/16, p.79
Spectrometer detects foreign atom, 7/9, p.12

Pines Engineering Co. Inc.:
Rod bending press, IE, 12/10, p.139

Pioneer Broach Co.:
Horizontal broach, IE, 7/2, p.77

Pittsburgh Steel Co.:
Sheet annealing units boost cold roll capacity in modernization program, 10/8, p.33

Plasmadyne Corp.:
Hand held plasma jet deposit coatings, 10/8, p.20
Plasma jet torch, IE, 7/30, p.72

Polymer Corp.:
Cast nylon (MonoCast) process patented, 8/20, p.74

Cast nylon shapes, IE, 10/15, p.181
Gas distribution pipes coated in fluidized bed, 11/5, p.20

Pope Machinery Corp.:
Drive on grinding spindle 1 hp, IE, 12/17, p.176
Grinding spindle motor-piggyback, IE, 12/3, p.135
Headstock made to precise tolerances, IE, 8/27, p.100

Porter Company Inc., H. K.:
Riverside-Alloy buys wire drawing equipment, 8/20, p.33
Riverside-Alloy opens Prentiss wire mill at Holyoke, 12/3, p.35
Riverside-Alloy, Sendzimir mill, B, 12/31, p.19
Riverside-Alloy modernizes strip mill, B, 8/6, p.35

Porter-McLeod Machine Tool Co. Inc.:
Polisher doubles production, IE, 11/26, p.160

Power Instruments Inc.:
Tiny couplings connect test shafts, IE, 12/17, p.173

Power Tools Inc.:
Buys King Mfg., B, 12/31, p.19

Pratt & Whitney Co. Inc.:
Numerically controlled drill (Tape-O-Matic) pays off (gamble when unveiled), 12/10, p.83
Machinery Trading Corp. a subsidiary, 8/13, p.35
Salesmen get trading stamps, sales incentives, 8/27, p.19
Stanton: How to use depreciation as marketing tool, 10/15, p.166

Precision Welder & Flexopress Corp.:
Precision sparkplug welding, 8/20, p.142

Premier Steel Mills Ltd.:
Continuous casting procedure, 11/19, p.88

Prenco Inc.:
Impregnation machine agitates sealant, IE, 7/16, p.92

Prentice-Hall Inc.:
Chart shows job pattern in service-producing industries, 8/6, p.19

Prescott Mfg. Co.:
Compact computer records time on job and costs, IE, 8/27, p.109

Pressure Technology Corp. of America:
Fluid pressure extrusion, 11/19, p.31

Prime-Mover Co.:
Automatic drive-safety seat, IE, 11/26, p.167

Production Machinery Corp.:
Automatic handling on slitting line, 8/13, p.66
Buys Automated Finishing, 12/17, p.35

Production Tool Corp.:
Buys Danielson Mfg., 7/2, p.28

Progress Mfg. Co.:
Reading Tube: Mill maintenance costs cut with cast nylon parts, 8/20, p.74

Punch Products Corp.:
Hole punch press, IE, 10/22, p.247

Pyron Co.:
Expands iron powder facilities, 10/1, p.95

Q

Quaker Chemical Products Corp.:
Changes name, B, 11/19, p.35
Expands Metals Div. in Detroit, B, 8/20, p.35

Quantum Inc.:
Polymeric coating bonds nails to wood, 10/1, p.38

Quebec Steel Products Ltd.:
Welder cuts eight strips at a time, 9/17, p.126

Quinnico Inc.:
Organizes Bushman div., B, 10/15, p.33

R

Racine Hydraulics & Machinery Co.:
Marketing switchback expands sales potential, 11/5, p.90
Variable volume vane pumps, IE, 10/22, p.253

Recordak Corp.:
Microfilm reader projects entire drawing, IE, 12/3, p.142

Radio Corp. of America:
Automatic unit speeds tiny tube assembly, 9/17, p.117
PERT studied by Simeral and Bahls (cover), 11/19, p.74
Portable hardness tester, IE, 9/24, p.166

Ramco Equipment Co.:
Automatic line for washing die-castings, 10/15, p.93
Cleaning-drying machine automatic, IE, 11/12, p.132

Rampe Mfg. Co.:
Orbital finishing machine, IE, 11/19, p.155

Ransburg Electro-Coating Corp.:
Makes electrostatic hand spray gun, 10/8, p.28

Ransohoff Co.:
Unit cleans, deburrs, rinses, etc., IE, 11/26, p.160

Ransome Co.:
Heavy boom on welding head manipulator, IE, 10/15, p.177
Turning rolls, 600 tons capacities, IE, 9/3, p.136
Welding positioner holds 4000 lb parts, IE, 7/30, p.70

Rapistan-Keystone Inc.:
System for overhead conveyors, IE, 9/17, p.209

Raymond Loewy/William Smith Inc.:
Loewy: Need for quality designers, 12/24, p.68

Raytheon Co.:
Expands Bedford labs, missile facilities, 8/20, p.35
Pneumatic welding head, IE, 9/3, p.141

Ravens-Shinnston Corp.:
Organized, B, 7/30, p.28

Raymond Corp.:
Hand pallet truck, IE, 7/30, p.74
Remote control on narrow aisle trucks, IE, 10/22, p.250

Raytheon Co.:
Microscopic sensors, new role for transistors, 10/29, p.17

Read Standard: See Capitol Products

Reading Tube: See Progress Mfg.

Ready-Power Co.:
Sold, B, 9/17, p.33

Recordak Corp.:
Automatic information retrieval system, IE, 8/27, p.99
Microfilm reader, portable, IE, 10/29, p.100
Microfilm readers, 12 x 12 screens, IE, 12/31, p.71

Reed-Prentice: See Package Machinery

Reeve Electronics Inc.:
Automatic soldering machine, IE, 10/8, p.123

Regina Corp.:
Asks review of FTC order, list prices, 12/31, p.10

Reliance Electric & Engineering Co.:
Brake-motor lighter than earlier models, IE, 9/17, p.208
Brake-motor redesign, IE, 12/10, p.141
Master Electric move from Dayton to Ind.: Few hourly workers follow, 11/26, p.28
Postheating cast rotors boosts motor efficiency (Selas circular furnace), Ind. Works, 12/3, p.33

Renault:
Vincent Grob: Bets on new car R-8, introduced into U. S., 10/1, p.67

Renwell Electronics Corp.:
Buys Tresco Ltd., B, 9/10, p.35

Republic Aviation Corp.:
Charge union leaders misleading workers to believe in ultimate lay offs, 7/30, p.22
Frozen water used to form aerospace metals, 10/8, p.33
Spring helps simulate space flight conditions, 11/5, p.107

Republic Metals Co. Inc.:
Continuous ingot casting conveyor, 10/29, p.40

Republic Steel Corp.:
Alloys-high strength new (HPs) nickel-cobalt-carbon, 11/5, p.33
Alloys-high strength listed, 12/31, p.28
Appointments for reorganized operating structure, 10/29, p.27
Bark removal cuts rod surface defects, 12/24, p.36
Dividend cut, 8/27, p.27
Electricweld pipe mill (enters light wall pipe market), Youngstown, 10/1, p.27
Free machining steels new: Multicut, Multicut Leaded, and Multicut Leaded with Selenium, 12/17, p.88
Patton: Enlist stockholders' help on legislation, 12/3, p.17
Steel pipe corrosion-proof internal coating, epoxy lining called 'In-Ter-Line', 7/16, p.86
Television-fluoroscope checks line pipe welds, Gadsden, 8/6, p.94
Thin tin plate mill and annealing furnaces, Niles, O., 11/5, p.107

Reynolds Metals Co.:
Extruded curbing dev. (street corners, etc.), 12/10, p.19
Strikebound aluminum plants, 8/6, p.29

Richards Co., J. A.:
Movable foot control on bender, IE, 8/20, p.140

Riverside-Alloy: See Porter Company

Robertshaw-Fulton Controls Co.:
Miller: Motivating supervisors, 11/5, p.156

Robin Products Co.:
Stoutenburg: Ready for auto plastic clip market, 7/30, p.34

Roblin-Seaway Industries Inc.:
Licensed for pressure pouring, 8/6, p.33

Rochester Gear Inc.:
Grinder pays off in two ways, 12/17, p.80

Rockford Machine Tool Co.:
Roll forming machine, IE, 9/17, p.207

Rockwell Mfg. Co.:
Colby: Technology revolution swamping management, 11/19, p.19
Col. Rockwell: European investment opportunities, 7/9, p.46
Col. Rockwell: Profit squeeze continues, 10/29, p.17
Col. Rockwell: U. S. Foreign aid negates export expansion program, 10/1, p.75
Drill presses for heavy production, IE, 8/27, p.103
Electronic bandsaw, IE, 10/15, p.182
Lathe with ¾ in. collet, IE, 12/17, p.170
Vertical mill, IE, 12/3, p.144

Rogers Industries Inc.:
Electric induction unit, fast heating aluminum extrusions, 8/13, p.35

Rollway Bearing Co.:
Syracuse plant, 7/30, p.28

Roto Finish/Ransohoff Co.:
Vibratron finishing machine, IE, 8/27, p.101

Rupp Mfg. Inc.:
Personnel vehicle, IE, 9/3, p.136

Rusco Industries Inc.:
Merger, B, 10/8, p.35

Ruthman Machinery Co.:
Coolant pump, IE, 9/24, p.157

Ryan Aeronautical Co.:
MT-3 machining center, 12/10, p.29

Ryerson & Son Inc., Joseph T.:
Buys Cleveland property for expansion, 12/24, p.41
Joint service with Dutch firm, 12/31, p.18
Revises carbon steel prices in West, 11/19, p.116

S

St. Joseph Lead Co.:
Ince addresses NICB: Nonferrous metals outlook, 9/24, p.29

St. Mary Mfg. Corp.:
Intermeshing contact rolls, IE, 12/10, p.134

SKF Industries Inc.:
Buys Bremen Bearings, B, 8/6, p.33
Cylindrical bearing takes heavy loads, IE, 9/24, p.160
USW local ratifies labor pact, 7/16, p.22

Sahu Jain Industries:
India, fertile field for U. S. investment, 12/31, p.64

Savair Products Co.:
Air power, 25-psi, IE, 7/16, p.98

Schaefer Brush Mfg. Co.:
Powered unit keeps conveyor belts clean, IE, 11/5, p.166

Sciaky Bros.:
Fusion welder tape controlled, IE, 9/24, p.149

Scottish Machine Tool Corp. Ltd.:
Turret punch press, IE, 8/13, p.126

Selas Corp. of America:
Barrel furnace line (bar annealing at J&L), 10/1, p.46

Sentry Co.:
Vertical elevator-tube furnace, IE, 12/17, p.177

Sharon Steel Corp.:
Closes Lowellville Wks., iron-steel facility, 9/17, p.33
Digital computer for Stora-Kaldo oxygen facility, Roemer Wks., 7/9, p.27
Stora-Kaldo plant nears completion, 8/27, p.54
Stora-Kaldo converters start soon, 9/17, p.33

Sheffield Corp.:
Carbide readily machinable, 10/8, p.68
Gage checks transmission cases (autos), 7/23, p.145
Instrument checks gaging system, IE, 10/29, p.94
X-ray gages metal thickness for small mills, warehouses, 10/8, p.19

Shepard Niles Crane & Hoist Corp.:
Remote controls, IE, 11/19, p.164

SI Handling Systems Inc.:
Switching mechanism for towline systems, IE, 12/10, p.135

Signode Steel Strapping Co.:
Builds plant at Bridgeview, Ill. and a factory in Germany, 11/19, p.33
Nylon strapping introduced, 12/31, p.17; 12/24, p.15
Power strapping of packages only 1 in. high, IE, 8/27, p.102

Simonds Saw & Steel Co.:
Electric furnace melt shop, Lockport, N. Y., 12/31, p.19
Numerically controlled drill obviates $25,000 in jigs, fixtures, 10/8, p.64

Simplex Wire & Cable Co.:
To make steel armored plastic pipe, 8/6, p.33

Sinnigen & Co., James, Co.:
Survey: Manager jobhunters want bigger challenges, not more money, 12/10, p.27

Slick Electro Corp.:
Unitized magneto tested by Army Materiel Command, 9/26, p.96

Smith Corp., A. O.:
Alloy steel reactor pressure vessel (cover), 12/3, p.55
Separate auto chassis frame urged, 8/20, p.114
Portable ac welder, IE, 10/22, p.258

Smith Inc., G. E.:
Moldable exothermic material, Dyna-Form, IE, 11/5, p.165

Snyder Corp.:
Line machines transmission cases, IE, 9/10, p.179
Machining unit for transfer tools, IE, 11/19, p.159
Transfer unit machines two different crankshafts, IE, 12/24, p.76

Solar Aircraft Co.:
Titanium honeycomb brazed at low temp., 7/16, p.23

Solaronics Inc.:
Infrared heater wins efficiency rating, 8/6, p.18

Solon Industries Inc.:
How to bolster a declining foundry market (permanent mold line replaces dry sand for aluminum castings), 10/29, p.42

Sony Corp.:
Japanese firm makes TV tape recorders, 12/10, p.86

Special Engineering Service Inc.:
Coil-Matic stock leveler, IE, 12/10, p.140

Special Metals Inc.:
Alloy for turbine buckets-high temp. use, 8/6, p.93
Vacuum induction furnace, 9/24, p.35

Speed Selector Inc.:
Variable speed drives, IE, 8/13, p.126

Speedlap Supply Corp.:
Flatness measurements in lap grinding, IE, 9/17, p.211

Sperry Gyroscope Co.:
Pulse modulator drives x-ray tubes, IE, 12/3, p.139

Sperry Gyroscope Co. of Canada Ltd.:
Hauck: European firms use numerical controls, 12/10, p.33

Sperry Gyroscope Co. Ltd. (England):
French jig borer, 8/20, p.67

Sperry Products: See Automation Industries

Sperry Rand Research Center:
Spectrometer sorts atom, 7/9, p.12

Spitfire Tool & Machine Co.:
Quick change tanks on Micro-Lap, IE, 9/10, p.186

Springfield Foundry Co.:
Buys Plainville Casting, B, 12/31, p.19

Square D Co.:
Maechtlen: New goals for customer orientation, 10/8, p.59

Standard Electrical Tool Co.:
Grinders ease heavy work, IE, 10/1, p.93

Standard Instrument Corp.:
Electronic batch counter, IE, 12/10, p.136

Standard Pressed Steel Corp.:
Spring loaded anchor nut joins refractory metal, 9/24, p.106

Stanley Berg Machinery Co.:
Merges, B, 7/23, p.28

Stanley Works:
Strapping tool for fast work, IE, 9/3, p.140
Strapping tools-pushbutton, IE, 12/3, p.140

Star Machinery Co.:
Rabel: Speaks on state taxing laws, 7/2, p.23

Stearns Electric Corp.:
Electromagnetic brake light, compact, IE, 10/1, p.87

Steel Co. of Canada Ltd.:
Adds 2nd continuous annealing line, 9/17, p.33
Natural gas supplemental fuel, 10/1, p.48
To produce wide sheets (auto market), 10/1, p.27

Steel Co. of Wales Ltd.:
Digital computer at cold mill, Abbey Wks., 9/24, p.96

Stewart Bolling & Co. Inc.:
Two speed gear reducer, IE, 12/3, p.132

Stokes Corp., F. J.:
Space chambers for Douglas Aircraft, TO, 10/22, p.20
Vacuum heat treating furnaces, IE, 10/1, p.89

Stokvis Multiton Corp.:
Flo-Lift trucks, IE, 8/27, p.108

Stone Machinery Co. Inc.:
Oscillation added to cutoff machine, IE, 8/20, p.147

Stone & Webster Engineering Corp.:
Designs welded steel door for nuclear powerplant, 10/29, p.40

Studebaker Corp.:
Avanti—fiber glass body, 9/10, p.159
Auto sales trend (years), seeks to hold until '64 redesign, 9/17, p.183
Foreign subsidiaries sought, 9/17, p.184
Wagonaire-station wagon in '63, 9/17, p.183

Sunbeam Equipment Corp.:
Atmosphere generator operates lean or rich, IE, 11/26, p.162

Sun Oil Co.:
Cutting oil series, IE, 12/17, p.170

Super-Cut Inc.:
Diamond grinding wheel performance predicted, 9/10, p.100

Superior Tube Co.:
Quenching improves ductility of welds in hafnium, 12/10, p.20

Superior Welding Co. Inc.:
Buys Union Iron Wks., B, 10/15, p.35

Surface Combustion Div.:
Tube heat treating furnace, reverse roller action cuts unevenness, 8/6, p.74

Survey Research Associates:
Attitude surveys can pay off (employee motivation), 7/23, p.123

Sutton Engineering Co.:
High speed straighteners, IE, 7/9, p.80

Syntron Co.:
Rotary parts feeder, IE, 9/24, p.159

T

TAB Engineers Inc.:
Automation engineer need, 8/27, p.18

Taccone Corp.:
Package molder, IE, 7/16, p.101

Taylor Corp.:
Two washers for one means savings, 11/26, p.83

Taylor Fibre Co.:
Changes name, B, 11/19, p.35

Taylor Instrument Companies:
Millivolt Recorder, IE, 10/22, p.254

Techbuilt Inc.:
Steel used in houses, 12/17, p.27

Techno Truck Co.:
Hand truck battery powered, IE, 8/27, p.103

Telecomputing Corp.:
Nylon-epoxy adhesives for cryogenic applications, 10/15, p.114

Ten Bosch Inc., M.:
Forms Precision Machining Div., B, 11/19, p.33

Tenney Engineering Inc.:
Builds space-vacuum 'excursion boat' to simulate outer space conditions, 10/15, p.108

Texas Instruments Inc.:
Consolidates to form Materials & Controls Div., 8/13, p.35
Ti-Kote, bonded ceramic coating, 7/2, p.70

Thacker Trading Corp.:
Formed, B, 9/24, p.33

Thern Machine Co.:
Winch crane lifts 1000 lb load, IE, 11/26, p.160

Thomas & Baldwins Ltd., Richard:
Automatic hot strip mill, 12/17, p.31

Thompson Ramo Wooldridge Inc.:
Closed circuit TV pictures more detailed than home receivers, IE, 9/10, p.184
Numerical control on rebuilt milling machine, 11/5, p.107
Ramo: Technology shaping future of society, 8/6, p.153
Ramo: Technology is partnership of man and machine, 12/3, p.120
Spray particle analyzer, IE, 11/12, p.132
Square holes broached in tube, 12/3, p.84

Threadway Tap & Die Co.:
In new building, B, 7/23, p.28

Timken Roller Bearing Co.:
Magnetic coolant separators, 12/17, p.100
Portable scale weighs tubing shipments, 12/17, p.35

Tinnerman Products Inc.:
Progressive stamping dies form auto window vent clips, 11/5, p.96

Titanium Metals Corp. of America:
Titanium heat exchangers made in plate form, 7/23, p.136
Titanium lining for steel stack, 10/15, p.98
Titanium tank (huge) passes pressure tests, 8/20, p.76
Welding heavy titanium plates with open air tech., 7/23, p.12

Torrington Co.:
Aluminum retainers-roller bearings, 9/3, p.29

Torrington Mfg. Co.:
Small order coiler, IE, 11/26, p.164

Toledo-Beaver Tools Inc.:
Hydraulic hose cutting and skiving machines, IE, 11/5, p.170

Torque Transmission:
Speed reducer-fibreglas case, IE, 10/29, p.94

Toto Steel Co. Ltd.:
Iki: Continuous casting report, 9/17, p.90

Towmotor Corp.:
Battery lift truck, 12 mph, IE, 12/3, p.147
Electric trucks, IE, 7/23, p.148
Streamliner lift truck, IE, 12/10, p.133

Tracer Control Co.:
Die sinking tracer automatic, IE, 7/23, p.148

Trans-Tool Corp.:
Magnetic base on Trans-Mill, IE, 12/3, p.146

Tranter Mfg. Inc.:
Titanium heat exchangers made in plate form, 7/23, p.136

Triangle Steel & Supply Co.:
McLaughlin: Western steel prices meet competition, 10/29, p.17

Tri-Ordinate Corp.:
Three dimensional milling machine, IE, 12/10, p.134

Tri-State Engineering Co.:
Modernized welding setup, 8/20, p.72

Tube Reducing Corp.:
Sold, B, 7/2, p.27

Tuthill Pump Co.:
Motor-pump unit, IE, 10/1, p.87

Tyler Co., W. S.:
Buys Heifred, B, 12/17, p.35

Ty-Sa-Man Machine Co.:
Billet grinder, floating arbor feature, IE, 12/17, p.177
Power feed saws, IE, 10/22, p.244

U

Union Carbide Corp.:
Mason Jr.: Should big business be free or naturalized? 10/8, p.17
New silicone coatings, 7/23, p.27

Union Carbide Metals Co.:
Drake: Do-it-yourself lime kilns available to steelmakers, 8/13, p.76

United Aircraft Corp.:
Electron beam aimed at tiny electronics, Hamilton Standard Div., IE, 10/1, p.93
Electron beam welds bimetal turbine wheels, 7/9, p.12

United Shoe Machinery Corp.:
Clicking dies simplify blanking, 9/10, p.80

U. S. Electrical Motors:
Dripproof motor line, IE, 10/29, p.90
Varidrive-Syncrogear unit speeds, IE, 10/22, p.246

U. S. Industries Inc.:
Herforming unit — 300,000 ft-lb blow, Production Div., 10/22, p.169
Labor-management plan (IAM-USI), 10/22, p.147
Sells Axelson and Liberty Divs., 12/24, p.24
Tubular Div. was Southern Pipe, 8/27, p.33

U. S. Steel Corp.:
AS&W: Black light shows up flaws in rolled steel billets, 12/17, p.80
Auto material combinations research, 11/5, p.145
Blough: Taxes siphon too much GNP into nonproductive areas, 9/10, p.17
Capital spending, 1962, 9/3, p.17
Closes AS&W obsolete facilities, Donora Wks., 7/30, p.24
Closes facilities, Clairton Wks., 10/15, p.33
Columbia-Geneva tin line expansion, 11/21, p.85
Dumping charged at foreign pipe producers, 12/24, p.15
Duquesne Wks.: Oxygen furnaces, ready in '61, 9/3, p.31 and 9/10, p.101
Economist Smith cites need to clarify profit concept, 10/29, p.81
Free machining leaded steels put on market, 7/2, p.26
Gary builds five stand tandem, cold rolling mill, (74 in. wide sheets), 8/13, p.19
Gary mill to provide flatter and wider sheets, 8/20, p.76
Gary contract let to Mesta, 8/27, p.33
Gary digital logging system for strip mill, 11/19, p.101
Housing foundation of steel, 12/24, p.14
Howell: Addresses Sanitary conference, plant water problems, 12/3, p.76
Irvin Wks., terne plate-sheet line, 10/1, p.42
Irvin Wks., tilter handles hot bands (coils onto conveyor), 10/22, p.161
Italian venture, structural fabricating, 10/1, p.14

Larry: Job for industry, develop co-op atmosphere, 10/1, p.13
Line pipe price discounts revised, 7/23, p.157
Lohrentz: Job retraining, a co-op venture, 11/12, p.116
National Tube: Urethane rings aid testing steel pipe, 9/17, p.122
Obbard: Foreign competition tightens, 11/19, p.28
Oliver Mining relinquishes lease on Lake Superior ore reserve, 11/26, p.123
Paddock: Outdated building codes limit new materials, methods, 12/17, p.103
Plowman: Transportation must 'rationalize' to halt nationalization, 8/6, p.91
Pricing revision, secondary sheets, 12/3, p.19; 12/10, p.27 and (chart), 12/10, p.99
S. Chicago: 'Man sized' molds for king sized ingots, (pic), 12/10, p.33
Vinyl coated steel, information shared on marketing and production, 8/6, p.18
Worthington: Role of profits in business, 8/13, p.17
Worthington: Modernization means jobs (new plate mill at Gary Wks.), 10/29, p.18
Worthington: Who can best serve public interest? 10/15, p.17

U. S. Tool Co. Inc.:
Slide feed unit on press, IE, 11/19, p.163

Universal-Automatic Corp.:
Air operated drilling, tapping, threading machine, IE, 9/3, p.139

V

Vacuum Specialties Inc.:
Pump on lab space chamber, IE, 11/12, p.137
Skull furnace melts refractory metals, IE, 10/1, p.90

Valeron Corp.:
Boring unit needs no lock screw, IE, 10/1, p.85

Value Analysis Inc.:
British and Japanese firms use service, 7/9, p.62

Value Line Investment Survey:
Farm equipment sales, 8/13, p.17

Vanadium-Alloys Steel Co.:
Automated sheet rolling mill, Monaca, Pa., B, 7/30, p.28
Roberts: Against import encouragement, 9/10, p.170

Vanadium Corp. of America:
Lithium alloy lowers oxygen and hydrogen content of carbon and stainless steels, 9/10, p.96

Vaughn Machinery Co.:
Joint bar facility with Bliss & Laughlin, 12/17, p.29

Veeder-Root Inc.:
Rotary pulse generator, IE, 10/22, p.255

Veet Industries Inc.:
Buys Axelson and Liberty Divs., 12/24, p.24

Vibrodyne Inc.:
Vibratory finisher uses resonant electromagnetic system, one moving part, 7/23, p.145

Vickers Inc.:
Better edge control for sheet and strip, TO, 10/22, p.20
District salesmen, cost control records keeps tab on performance (calls per day and dollar volume), 12/17, p.82
Hydraulic cylinders features, IE, 11/12, p.133
Hydraulic fluids promise more system life, 10/29, p.48
Hydraulic pumps run by hot gas motors, 10/22, p.169
Spotwelds hypersonic plane (British) of stainless steel, 7/23, p.122

Visi-Trol Engineering Co.:
Transfer chassis has 300 fixtures on platens, IE, 10/1, p.92

Volkswagenwerk A. G.:
Dr. Nordhoff: Slams U. S. suppliers; urges free world trade, 10/29, p.69
Common market slows sales, 7/23, p.94
Daily production figures, 10/22, p.226
Electronic telemetry trace car noises, vibration, 8/6, p.75
Number of workers required to build each car repeals 'Parkinson's Law,' 8/6, p.18
Operating highlights—3rd biggest carmaker, 9/17, p.31
Price hike, 7/16, p.27

Volvo Imports Inc.:
Dealer stock adjustment program, 7/9, p.10

W

Wachs Co., E. H.:
Pipe saw, IE, 9/10, p.183

Wah Chang Corp.:
Arc and electron beam compared billet refining, 7/30, p.12

Wakefield Corp.:
New grinding wheels do more work, tech. advances, 7/2, p.62
Two edged incentive plan, Vermilion plant, 8/27, p.48

Walker Hydraulic Duplicator Co.:
Duplicator for small lathes, IE, 7/2, p.78

Wallace Expanding Machine Co.:
Stamping method for auto door panels, 11/26, p.140

Waltz Furnace Co.:
Small tool furnace variations, IE, 10/22, p.248
Wash-draw furnace, automatic indexing, IE, 9/17, p.206

Ward-Riddle Co.:
Gun drill attachment on turret lathe, 11/5, p.87

Warner & Swasey Co.:
Spot plating cams, faster tech., 10/1, p.44
Turret lathe with gun drilling unit, 11/5, p.87

Warner Electric Brake & Clutch Co.:
Clutch/brake drives, start-stop, IE, 11/19, p.163
Packaged clutch-break (electric), IE, 9/10, p.179

Waterbury Farrel Foundry & Machine Co.:
Tubular rivet header, IE, 8/13, p.126
Vibratory feed on thread rolling, IE, 10/15, p.174

Wean Engineering Co.:
Equipment for terne plate mill, U. S. Steel, 10/1, p.42

Wean-McKay Ltd.:
New firm, 9/24, p.33

Webb Co., Jervis B.:
Wires in floor guide tractor train, IE, 9/10, p.184

Weirton Steel Co.:
Coal injection system, 8/6, p.86
Thin tin plate mills, 7/30, p.62

Welch Tool Sales Inc.:
Buys American Tool & Die, B, 10/8, p.33

Weld Tooling Corp.:
Flame cutter, welder positioned by magnets, IE, 11/5, p.166

Welded Tube Co. of America:
Tube mill capacity 150 tons a day, 11/19, p.33

Wells Mfg. Co.:
Continuous cast bars, 7/23, p.139

Wesche Electric Co., B. A.:
Variable speed-ac motor, IE, 9/17, p.207

West Instrument Corp.:
Buys Technique Associates, B, 12/24, p.24

Westinghouse Electric Corp.:
AEC joint study, big powerplants, 8/20, p.71
Atomic, Defense & Space Group (consolidation), 10/29, p.31
Buys tape controlled machine tool, $2 million, 9/17, p.18
Ceramic cylinder may replace gyroscope, space applications, 10/1, p.15
Doryl insulating resin (varnish) extends motor environment, 9/24, p.95
Dry bearings tested, 9/3, p.17
Enclosed fan cooled motors, IE, 8/13, p.130
Installs distribution transformer production line, Sharon, 8/6, p.35
MHD power (Dr. Way report), 8/27, p.29
Motor generator maintenance check means savings, 7/9, p.63
Motors for compressor, fans, IE, 12/31, p.72
Research center completed, Churchill Borough, 7/16, p.28
Single crystals offered, TO, 10/22, p.20
Superconductor Materials Dept. formed, Blairsville, Pa., 7/23, p.139
Welding system updated for Tri-State, 8/20, p.72

Wheelabrator Corp.:
Scale on coils removed by shot-blasting machines sold to Baron Steel, 7/23, p.133

Wheeling Steel Corp.:
Expansion program, 11/5, p.19

Whirl-Air Flow Corp.:
Cupola injector, crushing and conveying system for chips, borings, and other scrap, 7/2, p.57

White Sewing Machine Corp.:
Buys Wilgus Mfg., 12/17, p.35

Whitney Mfg. Co., W. A.:
Hydraulic duplicator press, IE, 12/17, p.170
Hydraulic gang punch, 11/26, p.83
Portable punches cut metal holes, 8/20, p.80
Three tools combined into mobile unit, IE, 8/6, p.160
Unit for hole punching, IE, 11/5, p.163

Wiesner-Rapp Co.:
Sold, B, 7/30, p.28

Willys Motors Inc.:
Station wagon-passenger car styling, 10/8, p.96

Winsmith Inc.:
Adaptable motor-reducers, IE, 10/22, p.241
Worm gear reducers to 11 hp, IE, 9/17, p.208

Wisconsin Centrifugal Foundry Inc.:
Licensed by Superston, B, 7/23, p.28

Wisconsin Drill Head Co.:
Unit (Wis-Matic) reams, taps, bores, IE, 9/10, p.178

Wyman-Gordon Co.:
Adopts marketing plan, 12/17, p.33
Aluminum forging for jet fuselage, 11/5, p.33
Columbium alloy forgings with forward extrusion tech. for nuclear applications, 8/13, p.20
Huge forging press turns out 1340 lb aircraft bulkhead, 9/10, p.86
India (Bombay) plant, 7/23, p.27

Y

Yale & Towne Mfg. Co.:
Coil handler, IE, 10/22, p.243
Fork lift truck-72 volt, IE, 12/24, p.73
Fork truck attachment-storing and selecting cartons, IE, 12/10, p.140
Fork truck, heavy loads in narrow aisles, IE, 11/5, p.168
Furnace charging forks on lift trucks, IE, 11/26, p.167
Walkie—truck motorized, IE, 12/17, p.172

Yawata Iron & Steel Co.:
Licenses for R-N direct reduction, 10/29, p.28

Youngstown Foundry & Machine Co.:
Jumbo contour lathe, IE, 10/1, p.86

Youngstown Sheet & Tube Co.:
Blast furnace ups iron output with all pellet burden, 10/22, p.164
Develops steel items, 11/5, p.33
Galvanized steel sheet line, Indiana Harbor Wks., 7/16, p.28
Research Center, Boardman, Ohio, 7/9, p.27

Youngstown Welding & Engineering Co.:
Makes welded stainless pipe with Allegheny, 11/12, p.29

Z

Zagar Inc.:
Building block design aids drill, IE, 9/24, p.157

Zero Mfg. Co.:
Forms Precision Stamping Div., 10/1, p.28

AUTHOR INDEX

Astin, Dr. Allen V., National Bureau of Standards, Physical measurement: Pilot of progress, 7/23, p.112

Leckie-Ewing, Peter, Latrobe Steel Co.: How to reduce failure of thread rolling dies, 7/2, p.66